



## ***Measuring the Financial Performance of Selected Private Sector Non-Life Insurance Companies in India***

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### **Abstract**

The Indian non-life (general) insurance sector, has undergone through a significant transformation over the years. Predominantly it was state-controlled but due to liberalization and the entry of private players, it has seen tremendous growth and experienced a more competitive market where private sector insurers are gaining significant market share. The focus of this research is to analyze the financial performance of selected private sector non-life insurance companies in India over the last decade [Study period (2013-14 to 2022-23)] using key financial ratios as prescribed by IRDA. As per this circular every insurance company should disclose a few of their important ratios in their published reports so that stakeholders can get a clear idea about their financial performance.

The review of the related literature reveals that most of the research has covered the market strategies, impact of privatization, innovation of customer service, and competitive analysis of the financial results of private and public sector non-life insurance companies. However, the study seeks to bridge that gap by using these financial ratios to evaluate the financial health of selected non-life insurance companies. This research considered 10 companies and the study period is also 10 years (2023-2013). The financial ratios specified in the IRDAI Master Circular for Performance Evaluation are as follows:

The specific objectives of the study is firstly evaluate the financial performance of the selected companies based on the financial ratios prescribed in the IRDA Master Circular and secondly to make an inter-company analysis of the selected companies in respect of their financial performance. All the secondary data have been collected from annual reports of selected non-life insurance companies and circulars published by IRDA. This empirical analysis offers insights into the financial health of private sector non-life insurance companies in India, providing a comprehensive view of their performance based on IRDAI-prescribed ratios. The study's findings are valuable for policymakers, investors, and industry experts, contributing to a deeper understanding of the sector's financial dynamics and competitive landscape.

**Keywords:** Financial Performance, Non-life Insurance Companies, Efficiency, Profitability, Growth.

### **Introduction**

Insurance can be defined as an agreement in which an individual or entity receives financial protection or compensation against losses from an insurance company. This combines the risks of clients so as to make payments less burdensome for the insured party. An insurer, or insurance provider, is businesses that offer insurance, while the insured or policyholder is the individual or entity purchasing the insurance policy. The cost for a specific amount of insurance coverage is termed the premium. Risk management, the practice of assessing and managing risk, has developed into a distinct field of study and application.

Insurance policies are utilized to mitigate the risk of monetary losses, whether substantial or minor, stemming from harm to the insured party or their assets, or legal responsibility for harm or injury inflicted upon a third party. The roots of general insurance can be traced back to the Western Industrial Revolution and the subsequent expansion of maritime trade

and commerce during the 17<sup>th</sup> century. In India, it was introduced during British rule. The foundation of General Insurance in India was laid with the establishment of Triton Insurance Company Ltd. in 1850 in Calcutta by the British. Subsequently, in 1907, Indian Mercantile Insurance Ltd. was formed, becoming the first company to engage in all categories of general insurance activities.

Following 1957, the General Insurance Council was established as a segment of the Insurance Association of India, aiming to establish ethical behavior and sound business practices. In 1972, the General Insurance Business (Nationalisation) Act led to the nationalization of the general insurance sector, effective from January 1, 1973. This process involved merging 107 insurance companies into four entities. The General Insurance Corporation of India was incorporated in 1971, with operations beginning on January 1, 1973. In 1993, the Indian government formed a committee under the leadership of R.N. Malhotra to propose enhancements in the

insurance sector. Following the recommendations of the Malhotra Committee, the Insurance Regulatory and Development Authority (IRDA) was established as an independent entity in 1999 to regulate and nurture the insurance industry.

The IRDA, established as a statutory body in April 2000, aims to foster competition to enhance customer satisfaction, provide greater consumer choice, and reduce premiums, all while ensuring the financial stability of the insurance market. The IRDA's move in August 2000 opened the market to private players through application invitations for registration. In December 2000, the subsidiaries of the General Insurance Corporation of India transitioned into separate companies, while GIC became a national re-insurer. In July 2002, a parliamentary bill detached the four subsidiaries from GIC.

General Insurance in India was nationalized through the General Insurance Business Act of 1972, resulting in the government taking control of 55 insurance companies and 52 insurers involved in the General Insurance Business. The Principal role of The General Insurance Corporation of India was overseeing and managing general insurance in India, alongside the transfer of government shares in general insurance. The amalgamation of general insurance companies led to the establishment of four subsidiaries under the General Insurance Company of India: National Insurance Company Limited, New India Assurance Company Limited, the Oriental Insurance Company Limited, and United India Insurance Company Limited.

Presently, according to an IRDA report, 32 non-life insurance companies are operating in India, including 4 from the public sector, 21 from the private sector, 2 specialized insurers, and 5 standalone health insurers.

### Review of Related Literature

Daswani (2020) explored the year-wise inflow of the FDI in the private general Indian insurance sector. This study threw light on the impact, growth, drawbacks, and prospects of FDI in the Indian insurance market. The study period of this study is from 2010-11 to 2018-19. To conduct this study five general insurance companies from the private sector were selected. Firstly, the researcher calculated two profitability ratios i.e. Net Profit Ratio and Operating Profit Ratio, and made an Inter-Firm FDI Comparison for both the ratios. In the second phase of this research three important investment ratios were calculated, they are RONW, Return on capital employed, and Return on total assets and also made an Inter-Firm FDI Comparison of these three ratios. Lastly, she conducted an overall comparative analysis of the FDI performances of five Private General Insurance companies in this paper.

Fatima (2017) in her study evaluated the global and national scenario of life insurance penetration, density, and market share of private and public players. She also examined the various life insurance plans and analysed the performance of the Life Insurance Corporation of India after the entry of private life insurance companies in India. The data was analysed using the CAMEL Model, Mann-Whitney U-test, percentage, average, and ratio analysis. The researcher collected and analysed the data after the entry of the private sector into the life insurance business. So, the exact period of this study is 2000 to 2015.

Kaur (2014) made a comparative study on the Growth and Performance of General Insurance in India. His study examined the overall growth & performance, portfolio management, and grievance redressal rate of private and

public general insurance companies. The researcher analysed the impact of private entrants in the insurance industry on the performance of public sector general insurers in India. The entire study was based on secondary data and the study period is 20 years (1919-2012).

Ahmed. (2013) conducted an empirical study on the performance Life Insurance Corporation of India and some selected private life insurance companies in Tamilnadu. This study threw light on the socio-economic status and attitude of the policyholders towards the LIC and private insurance of India in Chennai. This study measures the performance of LIC and Private Insurance companies over the last 10 years. He also ascertained the view of the policyholders in the selection of policies and services offered and measured the level of satisfaction of policyholders towards services rendered by the branch offices in Chennai. A total of 650 customers of rural and urban backgrounds were interviewed in this study to assess the attitude of policyholders. He concluded that customer care is the most significant driving factor in the insurance industry.

Subramani (2013) explored the historical perspective of the insurance business and the different products and features offered by the general insurance companies in India in his study. This study evaluated the performance of the public sector and private sector general insurance companies in India and analysed the perception level of their customers. They have taken a sample size of 150, where they took 75 samples of customers from the public sector and private sector insurance companies. The period of the study was 2000-01 to 2009-10. Through this paper, we also came to know that the insurance density in India is significantly lower than in the rest of the world.

Bhattacharya (2012) in her study, evaluates the performance of all four public sector non-life insurance companies engaged in general business (i.e. other than the two specialized insurance companies) and all the ten private sector non-life insurance companies in India. Therefore, the study is based on population rather than on samples. This study covers a period of 8 years from 2000-01 to 2007-08. She identifies fourteen parameters Gross Premium, Net Premium, claim due, commission, underwriting profit, investment income, profit before tax, share capital, reserve and surplus, capital employed, fixed assets, investment, and working capital. This paper also highlights the impact of the entry of private players in the Indian general insurance market. Private companies are consolidating their position in the Indian market.

Varma (2012) conducted a study to examine the comparative performance of public and private sector general insurance companies in India. This study focuses on the participation of private players in the insurance sector during the post-liberalization era. Primary data was mainly collected by conducting sample surveys in the Ernakulum district of Kerala. 500 customers were approached through a systematic sampling technique. Out of which 248 customers were from the public sector and the rest 252 were from the private sector. The study revealed that customers seem to prefer the private sector over the public sector because it is vibrant and follows a more customer-centric approach.

### Research Gap

Several studies have been conducted during the last few decades on different aspects of the Indian general insurance sector. Especially, the performance of the Indian general insurance sector, the role of the government in regulating this sector, the marketing strategies of the general insurance

companies, and the impact of privatization on this sector have been addressed in those studies. With the entry of private and foreign players, the general insurance market has become dynamic, proactive, and fiercely competitive. The companies belonging to this sector have been witnessing a new dawn. This sector has been following a new development pattern in terms of various performance parameters. Significant changes in customer services, use of technology, marketing strategies, market penetration, insurance products, and social welfare obligations have taken place in the Indian general insurance sector. A declining trend in the market share of public sector general insurance companies over the years has been noticed. The compounding growth rates of private sector general insurance companies are considerably higher as compared to the general insurance companies in the public sector.

The review of the related literature reveals that despite holding the leading position in the non-life insurance sector, adequate emphasis has not been given to the assessment of the performance of the companies belonging to the Indian non-life insurance sector. Moreover, as per the IRDAI Master Circular (issued on 28<sup>th</sup> Jan 2010 and became effective from 5<sup>th</sup> Oct 2012), every insurance company should disclose a few of their important ratios in their published reports so that stakeholders can get a clear idea about their financial performance. But adequate attention has not been given to the evaluation of the financial performance of the general insurance companies applying the ratios as prescribed by the IRDAI in the studies carried out in the recent past. Therefore, to bridge the gap the present study will attempt to analyze the financial performance of selected Private Sector Non-life insurance companies with the help of the ratios as suggested by the IRDAI for measuring liquidity, profitability, operating efficiency and some other aspects also.

### Objectives of the Study

The major objective of the study conducts a comparative analysis of the financial performance of some selected Private and Public Sector Nonlife Insurance Companies in India. Here the seven selected Private companies are Bajaj Allianz General Insurance Company Limited, Cholamandalam MS General Insurance Company Ltd (Chola MS), ICICI Lombard General Insurance Company Limited, Reliance General Insurance Company Limited, Royal Sundaram General Insurance, Tata AIG General Insurance and Tata AIG General Insurance.

The following are the specific objectives: -

- i). To make an inter-company analysis of the selected companies in respect of their financial performance.
- ii). To evaluate the financial performance of the selected companies based on the financial ratios prescribed in the IRDA Master Circular focusing on operating efficiency, profitability, and growth of net worth are assessed.

### Research Methodology:

**Data Type:** Secondary data

**Data Source:** The analysis of the present study is confined to evaluating the physical growth, and operational and financial performance of different private sector general insurance companies in India. The data for the present study are collected mainly from secondary sources such as various books, articles, journals, Annual Reports of IRDA, IRDA Journal, General Insurance Corporation Annual Reports and Annual reports of selected Non-Life Insurance Companies both from Private Sector.

To measure the financial performance of seven selected

general insurance companies we are going to use some suitable statistical tools. The financial performance of these seven insurance companies have been analyzed on the basis of the financial facts collected from the various annual reports of the insurance companies from 2022-23 to 2013-14. SPSS software and Microsoft Excel have been used to analyzed these data. Mean, Standard Deviation have been used to measure the central tendency. To conduct the comparative analysis of the selected companies in respect of their financial performance we use Ranking and Combined raking method. We have also calculated multiple correlation coefficient, coefficient of determination and Adjusted R<sup>2</sup>, ANOVA and Stepwise Regression to explore the relation between the independent variables (IVs) and the dependent variable (DVs). To identify these IVs and DVs first we calculate the following financial ratios.

To evaluate the operating efficiency of these companies we have selected the following financial ratios prescribed in IRDA Master Circular:

Gross Direct Premium Growth Rate =  $\frac{\text{Gross Premium for the Current Year}}{\text{Gross Premium for the previous year}}$ , Gross Direct Premium to Net Worth Ratio =  $\frac{\text{Gross Premium for the Current Year}}{\text{Paid up capital plus Free Reserves}}$ , Net Retention Ratio (Segment wise) =  $\frac{\text{Net Premium}}{\text{Gross Premium}}$ , Net Commission Ratio (Segment wise) =  $\frac{\text{Commission net of Reinsurance}}{\text{net written premium}}$ , Expenses of Management to Gross Direct Premium Ratio =  $\frac{\text{Expenses of management (operating expenses plus direct commission)}}{\text{gross direct premium}}$ , Expenses of Management to Net Written Premium Ratio =  $\frac{\text{Expenses of management (operating expenses plus net commission)}}{\text{Net Written Premium}}$ , Net Incurred Claims to Net Earned Premium =  $\frac{\text{Net Incurred Claims}}{\text{Net Earned Premium}}$ , Combined Ratio =  $\frac{\text{Claims paid plus expenses of management plus commission}}{\text{Net Written Premium}}$ .

To examine the profitability, we selected the ratios like Underwriting Balance Ratio =  $\frac{\text{Underwriting profit}}{\text{Net premium}}$ , Operating Profit Ratio =  $\frac{\text{Underwriting profit (loss) plus investment income}}{\text{Net premium}}$ , Net Earnings Ratio =  $\frac{\text{Profit after tax}}{\text{Net premium}}$ , Return on Net Worth =  $\frac{\text{Profit after tax}}{\text{Net worth}}$ . And lastly to review the Growth of the net worth, we choose the following ratios like, Gross Direct Premium to Net Worth Ratio =  $\frac{\text{Gross Premium for the Current Year}}{\text{Paid up capital plus Free Reserves}}$ , Growth Rate of Net Worth =  $\frac{\text{Net Worth as at the current balance sheet date}}{\text{Net Worth as at the previous balance sheet date}}$ , Return on Net Worth =  $\frac{\text{Profit after tax}}{\text{Net worth}}$ , Technical Reserves to Net Premium Ratio =  $\frac{\text{Reserve for unexpired risks plus premium deficiency reserve plus reserve for outstanding claims}}{\text{Net premium}}$ .

### Data Analysis and Interpretation

To perform a comparative financial analysis of the selected private sector non-life insurance companies these are Bajaj Allianz General Insurance Company Limited, Cholamandalam MS General Insurance Company Ltd (Chola MS), ICICI Lombard General Insurance Company Limited, Reliance General Insurance Company Limited, Royal Sundaram General Insurance, Tata AIG General Insurance and Tata AIG General Insurance) and we have chosen study period of last ten years i.e. 2022-23 to 2013-14. Here we compare the data on the basis of three parameters those are: operating efficiency, profitability, Growth of the net worth. As our first objective is to make an inter-company analysis of the selected companies in respect of their financial

performance, first we compare their Means and Standard Deviations. Table 1: Shows a comparative picture of Means

and Standard Deviations of all the selected companies.

**Table 1:** Comparative descriptive statistics of selected private sector non-life insurance companies.

Descriptive Statistics	N	Bajaj Allianz General Insurance		Cholamandalam Insurance		ICICI LOMBARD General Insurance		IFFCO Tokio General Insurance		Reliance General Insurance Company		Tata AIG General Insurance		Royal Sundaram General Insurance	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
GDPGR (Overall)	10	14.68%	8.65%	14.97%	12.99%	13.70%	12.83%	15.16%	14.43%	18.30%	10.82%	20.70%	15.44%	9.11%	15.48%
GDPNWR	10	207.70%	33.66%	282.70%	28.59%	241.60%	38.57%	301.30%	26.18%	348.10%	63.21%	301.20%	53.09%	267.00%	47.04%
GRNWR	10	22.73%	7.07%	17.70%	9.00%	19.50%	6.50%	19.43%	8.38%	12.80%	3.36%	20.20%	7.66%	14.01%	16.32%
NRR (Overall)	10	67.63%	9.53%	888.29%	2561.70%	66.90%	5.17%	66.52%	6.81%	61.20%	8.24%	68.00%	3.16%	64.31%	31.57%
NCR (Overall)	10	1.33%	2.78%	1.67%	0.90%	-1.00%	5.48%	2.47%	3.69%	-2.60%	2.91%	2.80%	1.87%	18.57%	29.96%
EMGDPR	10	23.26%	1.19%	29.95%	4.63%	25.50%	3.34%	19.21%	2.75%	24.30%	2.00%	28.30%	3.33%	28.72%	4.33%
EMNWPR	10	34.74%	5.23%	35.55%	4.95%	37.00%	2.49%	27.27%	3.07%	39.70%	5.54%	41.80%	2.90%	36.02%	2.80%
NCNEP	10	70.73%	2.16%	73.75%	2.73%	76.60%	4.58%	83.86%	6.27%	85.80%	6.12%	73.30%	2.83%	80.19%	3.35%
CR	10	97.78%	2.51%	105.20%	3.67%	103.20%	3.36%	105.86%	5.23%	114.90%	4.91%	106.90%	3.38%	111.04%	2.61%
TRNPR	10	159.30%	27.85%	202.20%	50.73%	228.10%	20.23%	1499.80%	4251.59%	209.40%	12.95%	150.90%	23.64%	185.70%	44.45%
UBR	10	-19.10%	63.59%	-6.10%	6.23%	-5.00%	3.16%	-7.28%	5.20%	-14.32%	6.46%	-10.10%	2.42%	-10.12%	5.87%
OPR	10	15.95%	2.38%	12.23%	4.33%	13.70%	2.91%	5.58%	5.70%	6.18%	5.73%	4.30%	4.27%	0.87%	29.24%
LALR	10	24.00%	6.58%	17.00%	7.41%	13.60%	3.17%	30.80%	13.25%	27.80%	5.71%	20.80%	9.44%	29.30%	6.73%
NER	10	13.86%	2.61%	6.05%	2.24%	12.20%	1.40%	5.94%	3.56%	4.93%	1.18%	5.10%	2.56%	3.96%	2.17%
RONW	10	19.24%	3.78%	13.59%	5.27%	18.40%	2.12%	12.50%	8.08%	10.60%	2.01%	10.50%	4.35%	7.77%	3.50%
ASM to RSM	10	275.50%	66.35%	172.30%	20.40%	219.20%	35.36%	165.10%	5.11%	159.50%	6.79%	179.20%	20.49%	185.60%	26.20%
NPAGR	10	0.17%	0.36%	29.50%	69.94%	0.00%	0.00%	0.25%	0.72%	0.45%	0.70%	0.00%	0.00%	0.24%	0.53%
NPANR	10	0.03%	0.07%	17.20%	54.39%	0.00%	0.00%	0.15%	0.46%	0.35%	0.55%	0.00%	0.00%	0.34%	0.72%

### Inference

As Mean is widely preferred as the best measure of Central Tendency because it is the measure that includes all the values in the dataset for its calculation, and any change in any of the data will affect the value of the mean. The above comparative descriptive statistics reveals that the mean of each ratios of Cholamandalam MS General Insurance Company Ltd (Chola MS) showing the highest value that means the performance of this company is far better than others. And in the other hand the Royal Sundaram General insurance company's mean is

steadily lower for all most all the seventeen ratios. Alongwith that we also calculate Standard Deviation to measure the dispersion of the dataset relative to its mean. We know that S.D. is the basic metric to measure volatility and it is an absolute measurement, not a relative measurement. In Table1 we also observed that SD of all the ratios of Royal Sundaram General insurance company is significantly higher than the other companies. The other companies have a moderate dispersion of the dataset relative to its mean.

**Table 2:** Individual Ranking and Combined Ranking**Table 2: Part: A**

Descriptive Statistics	GDPGR	Rank	GDPNWR	Rank	GRNWR	Rank	NRR	Rank	NCR	Rank	EMGDPR	Rank	EMNWPR	Rank	NCNEP	Rank	CR	Rank
Cholamandalam Insurance	14.97%	4	283%	4	18%	5	888%	1	2%	4	30%	1	36%	5	74%	5	105%	5
IFFCO Tokio General Insurance	15.16%	3	301%	2	19%	4	67%	5	2%	3	19%	7	27%	7	84%	2	106%	4
Reliance General Insurance Company	18.30%	2	348%	1	13%	7	61%	7	-3%	7	24%	5	40%	2	86%	1	115%	1
ICICI LOMBARD General Insurance	13.70%	6	242%	6	20%	3	67%	4	-1%	6	26%	4	37%	3	77%	4	103%	6
Tata AIG General Insurance	20.70%	1	301%	3	20%	2	68%	2	3%	2	28%	3	42%	1	73%	6	107%	3
Bajaj Allianz General Insurance	14.68%	5	208%	7	23%	1	68%	3	1%	5	23%	6	35%	6	71%	7	98%	7
Royal Sundaram General Insurance	9.11%	7	267%	5	14%	6	64%	6	19%	1	29%	2	36%	4	80%	3	111%	2

**Table 2, Part B**

Descriptive Statistics	TRNPR	Rank	UBR	Rank	OPR	Rank	LALR	Rank	NER	Rank	RONW	Rank	ASM to RSM	Rank	NPAGR	Rank	NPANR	Rank	Total Rank	Combined Rank
Cholamandalam Insurance	202%	4	-6%	2	12%	3	17%	6	6%	3	14%	3	172%	5	29.5%	1	17.20%	1	62	1
IFFCO Tokio General Insurance	1500%	1	-7%	3	6%	5	31%	1	6%	4	13%	4	165%	6	0.3%	3	0.15%	4	68	2
Reliance General Insurance Company	209%	3	-14%	6	6%	4	28%	3	5%	6	11%	5	160%	7	0.4%	2	0.35%	2	71	3
ICICI LOMBARD General Insurance	228%	2	-5%	1	14%	2	14%	7	12%	2	18%	2	219%	2	0.0%	6	0.00%	6	72	4
Tata AIG General Insurance	151%	7	-10%	4	4%	6	21%	5	5%	5	11%	6	179%	4	0.0%	6	0.00%	6	72	5
Bajaj Allianz General Insurance	159%	6	-19%	7	16%	1	24%	4	14%	1	19%	1	276%	1	0.2%	5	0.03%	5	78	6
Royal Sundaram General Insurance	186%	5	-10%	5	1%	7	29%	2	4%	7	8%	7	186%	3	0.2%	4	0.34%	3	79	7

### Inference

From the above table we can get an idea about the individual ranking of each ratio and along with that we also calculate the combined rank of the selected companies. Here we can have observed that the combined rank of Cholamandalam MS General Insurance Company Ltd (Chola MS) is 1. Cholamandalam MS General Insurance Company Ltd (Chola MS) achieved the top three positions in eight key ratios among the seventeen ratios prescribed in IRDA master circular. These ratios are NRR, EMGDPR, UBR, CPR, NER, RONW, NPAGR, and NPANR. As the mean score is consistently better for most of the ratios, so the combined rank of Cholamandalam MS General Insurance Company Ltd (Chola MS) show the highest rank. In contrast, Royal Sundaram General Insurance scores the lowest rank i.e. rank 7. For this company we can observe that out seventeen prescribed ratios by IRDA, in nine ratios Royal Sundaram General Insurance company scores the lowest three ranks including the following ratios GDPGR, GDPNWR, GWNWR, NRR, TRNPR, UBR, CPR, NER, RONW.

The rank of IFFCO-Tokio General Insurance Company Limited and Reliance General Insurance Company Limited among the seven selected non-life private sector insurance companies is moderately higher than ICICI Lombard General Insurance Company Limited, Tata AIG General Insurance and Bajaj Allianz General Insurance Company. Most of the profitability ratios of IFFCO-Tokio General Insurance Company Limited and Reliance General Insurance Company Limited

showing a better mean score than other three companies. This comparative analysis, which included mean, standard deviation, and ranking methods from which we can derive that the most efficient company is Cholamandalam MS General Insurance Company Ltd (Chola MS) and Royal Sundaram General Insurance performed comparatively poorly than others. In our study the second objective is to explore the financial performance of the selected companies based on the financial ratios prescribed in the IRDA Master Circular. To achieve the objectives of the study, we have identified three important parameters of financial performance. These are as follows:

- i). **Operating Efficiency:** To assess this Combined Ratio have identified as Dependent Variable (DV) and Net Incurred Claims to Net Earned Premium, Gross Direct Premium Growth Rate (Overall), Net Commission Ratio (Overall), Net Retention Ratio (Overall), Expenses of Management to Net Written Premium Ratio, Gross Direct Premium to Net Worth Ratio, Expenses of Management to Gross Direct Premium Ratio are considered the Independent Variables or Predictors (IVs).
- ii). **Profitability:** To measure this we choose Return on net worth as DV and Underwriting Balance Ratio, Operating Profit Ratio, Net Earnings Ratio are considering as IVs.
- iii). **Growth of Net worth:** To evaluate this we identified Return on net worth as DV and Gross Direct Premium to Net worth Ratio, Growth Rate of Net Worth and Technical Reserves to Net Premium Ratio are considering as IVs.

### i) Operating Efficiency of selected Private Sector Non-life Insurance Companies

**Table 3:** Descriptive Statistics

	Mean	Std. Deviation	N
Combined Ratio	106.41%	6.27%	70
Gross Direct Premium Growth Rate (Overall)	15.23%	13.02%	70
Gross Direct Premium to Net Worth Ratio	278.51%	59.27%	70
Net Retention Ratio (Overall)	183.26%	969.62%	70
Net Commission Ratio (Overall)	3.32%	12.96%	70
Expenses of Management to Gross Direct Premium Ratio	25.60%	4.69%	70
Expenses of Management to Net Written Premium Ratio	36.01%	5.76%	70
Net Incurred Claims to Net Earned Premium	77.75%	6.71%	70

### Inference

The mean represents the central value of a dataset. It provides a typical or representative value within the dataset. Standard deviation quantifies the amount of variability or spread in a dataset relative to the mean. A higher standard deviation indicates that the data points are more widely dispersed, while a

lower standard deviation suggests they are clustered more closely around the mean. Together, they provide insight into the central value and the variability of the dataset. From Table 3 of descriptive statistics we can derive that the mean of Gross Direct Premium to Net worth Ratio is the highest mean and Net Retention Ratio shows the highest SD.

**Table 4:** Check the Normality

One-Sample Kolmogorov-Smirnov Test		
N		Combined Ratio
		70
Normal Parameters (a, b)	Mean	106.4101%
	Std. Deviation	6.26828%
Most Extreme Differences	Absolute	0.070
	Positive	0.070
	Negative	-0.046
Test Statistic		0.070
Asymp. Sig. (2-tailed)		.200 <sup>(c, d)</sup>
a) Test distribution is Normal.		
b) Calculated from data.		
c) Lilliefors Significance Correction.		
d) This is a lower bound of the true significance.		

### Inference

Here we set a null hypothesis i.e.

**H<sub>0</sub>:** Distribution is not Normal,

**H<sub>1</sub>:** Distribution is Normal.

Here the p value is greater than 0.05 then distribution of variable is normal. So we accept the H<sub>1</sub> i.e. alternative hypothesis.

In the next phrase of our analysis we run the linear regression analysis.

### Linear Regression Analysis

**Table 5:** Linear Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931 <sup>a</sup>	0.866	0.851	2.41932%
a) <b>Predictors:</b> (Constant), Net Incurred Claims to Net Earned Premium, Gross Direct Premium Growth Rate (Overall), Net Commission Ratio (Overall), Net Retention Ratio (Overall), Expenses of Management to Net Written Premium Ratio, Gross Direct Premium to Net Worth Ratio, Expenses of Management to Gross Direct Premium Ratio				

### Inference

- The 'R' column represents the value of 'R' i.e. multiple correlation coefficient. 'R' can be considered to be one measure of the quality of the prediction of the dependent variable (DV), in this case, it is Combined Ratio the value of 0.931 indicates a good level of prediction.
- The 'R Square' column represents the value of R<sup>2</sup> i.e. coefficient of determination. Which is the portion of the variance in the dependent variable (DV) that can be explained by the independent variable (IV). In the above

case the value of R<sup>2</sup> = 0.866, which means our IVs/Predictors explain 86.6% of the variability of our DV (Combined Ratio). And 13.4% (100-86.6%) of the variation is caused by factors other than the predictors included in the model. Basically, it indicates how well a regression model fits a data set.

- The 'Adjusted R Square' column considers the number of variables also. R<sup>2</sup> shows how well data points fit a regression line assuming every single variable explains the variation in the DV which is not true. Whereas Adjusted R<sup>2</sup> tells how well the data points fit a regression line showing the percentage of variation explained only by the IV that actually affects the DV. Here Adjusted R<sup>2</sup> = 0.851 which means all the IVs are creating an 85.1% variation in DV.
- The standard Error (in this example i.e. .242%) of a model is a measure of the precision of the model. It is the Standard Deviation of the residuals. It shows how wrong one could be if someone used the regression model to make predictions or to estimate the DV. As R Square increases the standard error will decrease.

**Table 6:** ANOVA<sup>a</sup>

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2348.212	7	335.459	57.313	.000 <sup>b</sup>
	Residual	362.892	62	5.853		
	Total	2711.104	69			

### Inference

The F ratio in the ANOVA tests whether the overall regression model is a good fit for the data. Table no. 6 shows that the independent variables statistically and significantly predict the dependent variable, F(7, 62) = 57.313, p(.000) < .05 (i.e. regression model is a good fit of the data).

**Table 7:** Checking of the Collinearity Tolerance

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.814	5.116		1.918	0.060		
	Gross Direct Premium Growth Rate (Overall)	-0.003	0.025	-0.006	-0.126	0.901	0.810	1.235
	Gross Direct Premium to Net Worth Ratio	0.006	0.006	0.057	0.992	0.325	0.656	1.524
	Net Retention Ratio (Overall)	2E-05	0.000	0.004	0.078	0.938	0.956	1.046
	Net Commission Ratio (Overall)	0.039	0.025	0.081	1.586	0.118	0.837	1.194
	Expenses of Management to Gross Direct Premium Ratio	0.560	0.085	0.419	6.587	0.000	0.533	1.876
	Expenses of Management to Net Written Premium Ratio	0.297	0.065	0.273	4.547	0.000	0.597	1.675
	Net Incurred Claims to Net Earned Premium	0.898	0.053	0.961	16.934	0.000	0.671	1.491
a. Dependent Variable: Combined Ratio								

### Inference

To Check the Collinearity Tolerance the rule is, if the value of Collinearity Tolerance is less than 0.4 then Collinearity exists. So in this regression as all the Collinearity Tolerance is more than 0.04 so Collinearity does not exist between the IVs.

In the above table the P value of Gross Direct Premium Growth Rate (Overall), Gross Direct Premium to Net Worth Ratio, Net Retention Ratio (Overall) and Net Commission Ratio (Overall) are more than 0.05, so the impact of all these ratios on our DV i.e. Combined Ratio is insignificant. (0.060, 0.901, 0.325, 0.938, 0.118)

And the p values of rest three ratios i.e., Expenses of Management to Gross Direct Premium Ratio, Expenses of Management to Net Written Premium Ratio, Net Incurred Claims to Net Earned are less than 0.05, so these IVs have Significant impact on DV

- 1-unit increase of Expenses of Management to Gross Direct Premium Ratio cause 0.419-unit increase of Combined Ratio
- 1-unit increase of Expenses of Management to Net Written Premium Ratio cause 0.273-unit increase of Combined Ratio

- 1-unit increase of Net Incurred Claims to Net Earned cause 0.961-unit increase of Combined Ratio.

the stepwise regression method and identify the chronological order of the IVs, which have significant impact on DV.

To reconfirm the above mentioned result we are going to run

**Table 8:** Stepwise Regression Analysis

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	Net Incurred Claims to Net Earned Premium		Stepwise (Criteria: Probability-of-F-to-enter ≤ .050, Probability-of-F-to-remove ≥ .100).
2	Expenses of Management to Gross Direct Premium Ratio		Stepwise (Criteria: Probability-of-F-to-enter ≤ .050, Probability-of-F-to-remove ≥ .100).
3	Expenses of Management to Net Written Premium Ratio		Stepwise (Criteria: Probability-of-F-to-enter ≤ .050, Probability-of-F-to-remove ≥ .100).
a) Dependent Variable: Combined Ratio			

**Table 9:** Status of R Square

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720 <sup>a</sup>	0.519	0.512	4.38019%
2	.900 <sup>b</sup>	0.811	0.805	2.76736%
3	.927 <sup>c</sup>	0.860	0.854	2.39919%
a) Predictors: (Constant), Net Incurred Claims to Net Earned Premium				
b) Predictors: (Constant), Net Incurred Claims to Net Earned Premium, Expenses of Management to Gross Direct Premium Ratio				
c) Predictors: (Constant), Net Incurred Claims to Net Earned Premium, Expenses of Management to Gross Direct Premium Ratio, Expenses of Management to Net Written Premium Ratio				

**Table 10:** Checking of the Collinearity Tolerance

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	54.098	6.132		8.822	0.000		
	Net Incurred Claims to Net Earned Premium	0.673	0.079	0.720	8.562	0.000	1.000	1.000
2	(Constant)	15.796	5.404		2.923	0.005		
	Net Incurred Claims to Net Earned Premium	0.904	0.055	0.968	16.554	0.000	0.827	1.210
	Expenses of Management to Gross Direct Premium Ratio	0.794	0.078	0.594	10.167	0.000	0.827	1.210
3	(Constant)	8.567	4.920		1.741	0.086		
	Net Incurred Claims to Net Earned Premium	0.925	0.048	0.990	19.458	0.000	0.820	1.220
	Expenses of Management to Gross Direct Premium Ratio	0.593	0.080	0.444	7.444	0.000	0.598	1.672
	Expenses of Management to Net Written Premium Ratio	0.298	0.062	0.274	4.810	0.000	0.653	1.531
a) Dependent Variable: Combined Ratio								

## Inference

From the above three tables i.e., Table 8, Table 9 and Table 10 we can derived that

1. The independent variable with the greatest impact on the dependent variable is the Net Incurred Claims to Net Earned Premium. Following this, the second most significant factor is the Expenses of Management to Gross Direct Premium Ratio, and lastly, the Expenses of Management to Net Written Premium Ratio.
2. In the first model we include one single IV i.e., Net Incurred Claims to Net Earned Premium. In the second model we include two IVs i.e., Net Incurred Claims to Net Earned Premium and Expenses of Management to Gross Direct Premium Ratio. And lastly in the third model we include Net Incurred Claims to Net Earned Premium and Expenses of Management to Gross Direct Premium Ratio and Expenses of Management to Net

Written Premium Ratio. But for these three model we have only one DV i.e. Combined Ratio. In Table 9 we can observed that the  $R^2$  i.e. coefficient of determination of the 1<sup>st</sup> model is 0.519 which means our IVs/Predictors explain 51.9% of the variability of our DV (Combined Ratio). But whenever we include more IVs i.e., Expenses of Management to Gross Direct Premium Ratio and Expenses of Management to Net Written Premium Ratio then  $R^2$  shows a better figure. In the 2<sup>nd</sup> and 3<sup>rd</sup> model  $R^2$  are 90% and 92.7% respectively. Which indicates how well a regression model fits a data set.

3. From Table 10 we can conclude that the p values of three models are less than 0.05, so these model have Significant impact on DV
  - a) 1-unit increase of Net Incurred Claims to Net Earned cause 0.720-unit increase of Combined Ratio.
  - b) 1-unit increase of Net Incurred Claims to Net Earned

and Expenses of Management to Gross Direct Premium Ratio cause 0.968 and 0.594 -unit increase of Combined Ratio.

- c) 1-unit increase of Net Incurred Claims to Net Earned, Expenses of Management to Gross Direct Premium Ratio and Expenses of Management to Net Written Premium Ratio cause 0.990, 0.444 and 0.274-unit increase of Combined Ratio.

## ii) Profitability of Selected Private Sector Non-life Insurance Companies

**Table 11:** Descriptive Statistics

	Mean	Std. Deviation	N
RONW	13.2280%	5.89835%	70
UBR	-10.2894%	23.86603%	70
OPR	8.3999%	12.39604%	70
NER	7.4331%	4.29159%	70

### Inference

Form Table 11 of descriptive statistics we can derived that the mean of Return on Net worth Ratio is the highest mean and Underwritten Balance Ratio shows the highest SD.

**Table 12:** Linear Regression Analysis

ANOVA <sup>a</sup>					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1847.109	3	615.703	73.425	.000 <sup>b</sup>
Residual	553.441	66	8.385		
Total	2400.549	69			
a) Dependent Variable: RONW					
b) Predictors: (Constant), NER, UBR, OPR					

**Table 13:** Summary of Regression Equation Model.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 <sup>a</sup>	.769	.759	2.89577%
a) Predictors: (Constant), NER, UBR, OPR				

- 'R' is the measure of the quality of the prediction of the dependent variable (DV), in this case, the value of is Return on Net worth 0.877 indicates a good level of prediction.
- The 'R Square' column represents the value of R<sup>2</sup> i.e. coefficient of determination. Which is the portion of the variance in the dependent variable (DV) that can be explained by the independent variable (IV). In the above case the value of R<sup>2</sup> = 0.769, which means our IVs/Predictors explain 76.9% of the variability of our DV

(Combined Ratio). And 23.1% (100-86.6%) of the variation is caused by factors other than the predictors included in the model. Basically, it indicates how well a regression model fits a data set.

- Here Adjusted R<sup>2</sup> = 0.759 which means all the IVs are creating a 75.9% variation in DV.
- The standard Error (in this example i.e. .23.1%) of a model is a measure of the precision of the model. It is the Standard Deviation of the residuals. As R Square increases the standard error will decrease.
- The F ratio in the ANOVA tests whether the overall regression model is a good fit for the data. Table no. 14 shows that the independent variables statistically and significantly predict the dependent variable,  $F(3, 66) = 73.425$ ,  $p(.000) < .05$  (i.e. regression model is a good fit of the data).

**Table 14:** Checking of the Collinearity Tolerance

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	4.972	.704		7.063	.000		
UBR	.054	.015	.219	3.699	.000	.992	1.008
OPR	.025	.031	.052	.796	.429	.811	1.233
NER	1.158	.090	.842	12.793	.000	.806	1.241
a) Dependent Variable: RONW							

### Inference

In the above table the p value of Operating Profit Ratio is more than 0.05, so the impact of all these ratios on our DV i.e. Return on Net Worth is insignificant. (0.429). And the p values of rest two ratios i.e., Underwritten Balance Ratio and Net Earnings Ratio have P value less than 0.05, so these IVs have Significant impact on DV

- 1-unit increase of Underwritten Balance Ratio cause 0.219-unit increase of RONW.
- 1-unit increase of Net Earnings Ratio cause 0.842-unit increase of RONW.

To reconfirm the above mentioned result we are going to run the stepwise regression method and identify the chronological order of the IVs, which have significant impact on DV

**Table 15:** Variables Entered/Removed<sup>a</sup>

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	NER	.	Stepwise (Criteria: Probability-of-F-to-enter ≤ .050, Probability-of-F-to-remove ≥ .100).
2	UBR	.	Stepwise (Criteria: Probability-of-F-to-enter ≤ .050, Probability-of-F-to-remove ≥ .100).
a) Dependent Variable: RONW			

Table 16: ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1725.061	1	1725.061	173.658	.000 <sup>b</sup>
	Residual	675.488	68	9.934		
	Total	2400.549	69			
2	Regression	1841.792	2	920.896	110.424	.000 <sup>c</sup>
	Residual	558.757	67	8.340		
	Total	2400.549	69			
a) Dependent Variable: RONW						
b) Predictors: (Constant), NER						
c) Predictors: (Constant), NER, UBR						

Table 17: Checking of the Collinearity Tolerance

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.568	.757		6.030	.000		
	NER	1.165	.088	.848	13.178	.000	1.000	1.000
2	(Constant)	4.953	.702		7.059	.000		
	NER	1.189	.081	.865	14.632	.000	.994	1.006
	UBR	.055	.015	.221	3.741	.000	.994	1.006
a) Dependent Variable: RONW								

### Inference

From the above three tables i.e., Table 15, Table 16 and Table 17 we can derived that

1. That the independent variables which have the greatest impact on the dependent variable is the Net Earnings Ratio. Following this, the second most significant factor is the Underwriting Balance Ratio.
2. In the first model we include one single IV i.e., Net Earnings Ratio. In the second model we include two IVs i.e., Net Earnings Ratio and Underwriting Balance Ratio.

From Table 16 we can observed that the  $R^2$  i.e. coefficient of determination of the 1<sup>st</sup> model is 0.719 which means our IVs/Predictors explain 71.9% of the variability of our DV

(RONW). But whenever we include more IVs i.e., Underwriting Balance Ratio then  $R^2$  shows a better figure. In the 2<sup>nd</sup> model  $R^2$  76.7%. Which indicates how well a regression model fits a data set.

3. From Table 17 we can conclude that the p values of three models are less than 0.05, so these model have Significant impact on DV
  - a. 1-unit increase of Net Earnings Ratio cause 0.848-unit increase of RONW.
  - b. 1-unit increase of Net Earnings Ratio and Underwriting Balance Ratio cause 0.865 and 0.221 -unit increase of RONW.

### iii) Growth of Net Worth of Selected Private Sector Nonlife Insurance Companies

Table 18: Descriptive Statistics of Growth of Net Worth

Descriptive Statistics			
	Mean	Std. Deviation	N
Return on Net Worth	13.2280%	5.89835%	70
Gross Direct Premium to Net Worth Ratio	278.5143%	59.27063%	70
Growth Rate of Net Worth	18.0523%	9.29501%	70
Technical Reserves to Net Premium Ratio	376.4857%	1603.92917%	70

### Inference

Form Table 18 of descriptive statistics we can derived that the mean of Gross Direct Premium to Net worth Ratio is the highest

mean and Technical Reserve to Net Premium Ratio shows the highest SD.

### Linear Regression Analysis (Table 19 and Table 20)

Table 19: Linear Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.493 <sup>a</sup>	.243	.209	5.24721%
a) Predictors: (Constant), Technical Reserves to Net Premium Ratio, Gross Direct Premium to Net Worth Ratio, Growth Rate of Net Worth				

Table 20: ANOVA<sup>a</sup>

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	583.355	3	194.452	7.062	.000 <sup>b</sup>
	Residual	1817.195	66	27.533		
	Total	2400.549	69			
a) Dependent Variable: Return on Net Worth						
b) Predictors: (Constant), Technical Reserves to Net Premium Ratio, Gross Direct Premium to Net Worth Ratio, Growth Rate of Net Worth						

### Inference

1. 'R' is the measure of the quality of the prediction of the dependent variable (DV), in this case, the value of is Return on Net worth 0.493 indicates a good level of prediction.
2. The 'R Square' column represents the value of  $R^2$  i.e. coefficient of determination. Which is the portion of the variance in the dependent variable (DV) that can be explained by the independent variable (IV). In the above case the value of  $R^2 = 0.0243$ , which means our IVs/Predictors explain 24.3% of the variability of our DV (RONW). And 75.7% (100-24.3%) of the variation is caused by factors other than the predictors included in the model. Basically, it indicates how well a regression model fits a data set. Here as the  $R^2$  is pretty low so we can say the regression model does not fit into the data properly.
3. Here Adjusted  $R^2 = 0.209$  which means all the IVs are creating a 20.9% variation in DV.
4. The standard Error (in this example i.e. 5.24) of a model is a measure of the precision of the model. It is the Standard Deviation of the residuals. As R Square increases the standard error will decrease.
5. The F ratio in the ANOVA tests whether the overall regression model is a good fit for the data. Table no. 20 shows that the independent variables statistically and significantly predict the dependent variable,  $F(3, 66) = 7.062$ ,  $p(.000) < .05$  (i.e. regression model is a good fit of the data).

Table 21: Checking of the Collinearity Tolerance

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.763	3.338		4.123	.000		
	Gross Direct Premium to Net Worth Ratio	-.020	.011	-.202	-1.885	.064	.997	1.003
	Growth Rate of Net Worth	.279	.068	.440	4.096	.000	.995	1.005
	Technical Reserves to Net Premium Ratio	8.977E-5	.000	.024	.228	.821	.997	1.003
a) Dependent Variable: Return on Net Worth								

### Inference

In the above table the p value of Gross Direct Premium of Net worth Ratio and Technical

Reserves to Net Premium Ratio is more than 0.05, so the impact of all these ratios on our DV i.e. return on Net Worth is insignificant. And the p values of Growth Rate of Net worth have p value less than 0.05, so this IVs have significant impact on DV. But the impact is also pretty low.

- 1-unit increase of Growth Rate of Net worth cause 0.440-unit increase of RONW.

### Conclusion

By reviewing the above-mentioned study, we have come to know that with the entry of private and foreign players, the market has become dynamic, proactive, and fiercely competitive. Insurance companies are witnessing new dawn, a new development pattern in terms of various performance parameters, customer services, use of information technology, advanced marketing strategies, deeper market penetration, customer specific products, social welfare obligations, and likewise.

Through this comparative analysis, we can conclude that the overall financial performance of Cholamandalam MS General Insurance Co. Ltd (Chola MS), IFFCO-Tokio General Insurance, and Reliance General Insurance Company Limited is significantly stronger than that of the remaining seven

companies in the study. This observation is further supported by their combined rankings.

In addition, we have identified the key predictors of operating efficiency, profitability, and net worth growth. For each of these parameters, we pinpointed the independent variables that have the greatest impact on their respective dependent variables.

From this study, it can also be concluded that the ratios prescribed by the Insurance Regulatory and Development Authority (IRDA) in its Master Circular serve as reliable indicators for predicting the financial health and performance of non-life insurance companies.

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