

## **Profitability Analysis of Public Sector General Insurance Companies in the Pre and Post Liberalisation Period**

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### **Abstract**

Profitability is one of the key factors in all the business activities of the company, that reveals the ability of a firm to make profits. During the liberalised regime, the increased competition from the private sector general insurance sector finds difficult to maintain profitability to most of the public sector companies. An empirical evaluation of the profitability dimensions of public sector companies, particularly after the opening up of this sector to private players, is important for the success of the entire general insurance industry in India. This paper analyses how public sector general insurance companies in India generate profits in the pre and post liberalisation period. This paper also tries to examine the various profitability ratios like claims ratio, expense ratio, combined ratio, operating ratio. Sample of the study includes four public sector general insurance companies in India, New India Assurance Company Ltd., National Insurance Company Ltd., Oriental Insurance Company

*Key words: General Insurance, Profitability, Liberalisation, Claims ratio, Expense ratio, Combined ratio, Operating ratio*

### **Background of the study**

The Indian economy in the beginning of 1990's had to change its line of functioning, from a public sector dominated economy to a market friendly economy. The entire world economy changes with the panacea of liberalise, privatise and globalise. With this aim the economy had entered in to a policy shift by reducing the barriers in market entry. Liberalisation is more market access. During this period, the spirit of capitalistic forces of development, competitive market structure and demand supply act and react as real market forces got utmost priority. In line with these changes, the Government of India liberalise the general insurance sector in India with the idea of increased competition, obtain best technology available in this sector and the increased efficiency, productivity, profitability and service quality in this sector.

It is generally argued that changes in the general insurance sector through liberalisation would help to bridge the gap exists in the general insurance market in India and the prevailing exploitation of the public sector general insurance companies.

The government has realised that the public sector general insurance companies are not in a position to cater the needs of the time. Hence the government thought of giving free market entry to big private companies and also provide benefits of free market entry to the customers through reforms in this sector.

### **Review of literature**

According to Howard and Upton (1953) profitability is "though profitability is the ability of a given investment to earn from its use". Profitability is worked out based on claims ratio, Expense ratio, Combined ratio, underwriting results ratio, Investment Income ratio, Net retention ratio, Operating ratio, Net earning ratio, Return on equity ratio. These values are computed for public sector general insurance companies for the period of 1993-2016.

Profitability in the general insurance sector evaluation helps to know how this sector is going to behave in the years to come. This sector is globally growing which indicates that the sector is making enough profit to attract entry and also exit in an oligopolistic market structure. It is equally important that profitability in the general business sector is not governed with a single factor but is determined by several factors. Financial sector profitability literature is mostly connected with banks and literature relating insurance sector is very few and even if it available it is compared with the profitability of the banks. The literature pertaining to the insurance sector is mostly empirically connected and also focused on some internal factors of the insurance business like age, size, growth, volume of capital etc.

It is required to focus on the operational efficiency and management help to aid insurance stakeholders to achieve reasonable profit so as to gain a competitive edge in a sector facing competition both from within and outside (Dhanabhakym et al, 2012; Hussain, 2014). Profit elements affect operation efficiency and undermine the sustainability and growth of insurance sector (Akotey et al, 2013).

Insurance industry in India is particularly customer driven and customer centric. Insurance products become attractive provided it is attractive to the customers. This helps the industry to flourish in the market, which in turn suits the insurers to generate profit and income for their investment (Balachandran, 2001). Kobylanski and Pavlowska (2012) explain that most insurance firms do not give customer satisfaction important. Inadequate attention in this area leads to reduction in benefits to customers and non-fulfilment of the company's expectation and this adversely affect the profitability and the expectations of the companies.

### **Methodology**

Profitability is computed by evaluating the ratios like Claim Ratio (Ratio of net claim incurred to net written premium), Expense Ratio (Ratio of expenses of management to net written premium), Combined Ratio (Net incurred claim + expenses to net written premium), Underwriting Result Ratio (Net written premium minus claim, expenses and increase in unexpired risk reserve to net written premium), Investment Income Ratio (Investment income to net written premium), Net Retention Ratio ( Net written premium to gross direct premium), Operating Ratio (Profit before tax to net written premium), Net Earnings Ratio (Profit after tax to net written premium) and Return on Equity Ratio (Profit after tax to net worth). To have a better understanding of the performance of general insurance companies in a public-private and pre-post liberalisation framework, these ratios have been analysed and interpreted by calculating the Mean. The hypotheses regarding profitability have been tested by the use of Mann-Whitney U test. The impact of

the selected factors on public and private sector general insurers profitability and contribution of these variables towards the profitability is worked out using correlation technique. Multiple regression is used to identify the variables which determine the profitability aspects.

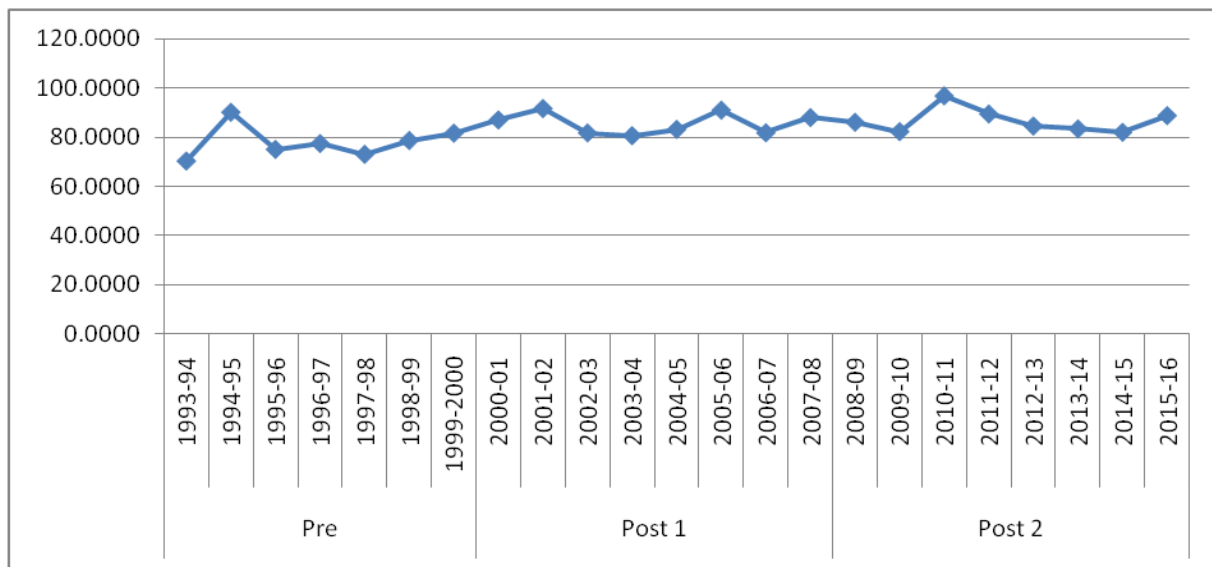
*H<sub>0</sub>: The profitability indicators of public sector general insurance companies are same both in the pre and post liberalisation periods.*

### Profitability Analysis of the Public Sector General Insurance Companies in the Pre and Post-reform Period

A pre-post comparison of the profitability indicators is done here for the public sector general insurance companies during 1993-94 to 2015-16. The pre-liberalisation period data for the seven years and the post-liberalisation data for 16 years (classified into two phases of 8 years each) are used for the analyses.

#### Claim Ratio

Figure 1 explains the claim ratio and it has shown an increasing trend since globalisation. The value is increased from 70 during 1993-94 to 81.6 during 1999-2000. The mean value comes to 88 during the end of first phase of liberalisation (2007-08). After this it shows a marginal increase with a change of 88.7 during 2015-16. Changes in both the periods show that mean score has increased from 78 (pre-liberalisation period) to 85.55 and to 86.57 in the two post liberalisation phases.

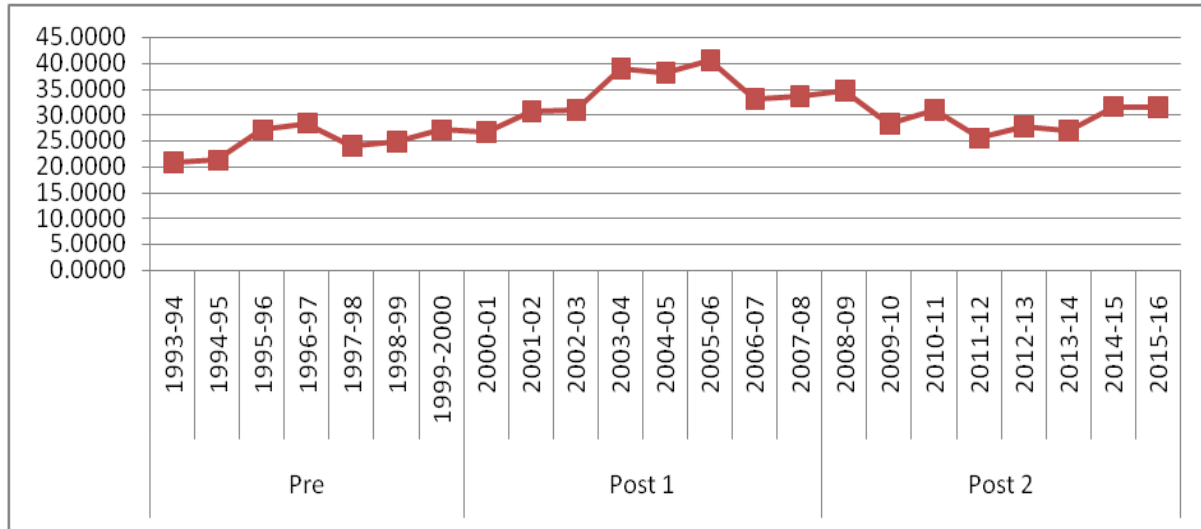


**Figure 1**

Claim Ratio for Public Sector General Insurance Companies

#### Expense Ratio

The expense ratio for the public general insurance companies for the post-liberalisation period has shown an increasing trend compared to the pre-liberalisation period. However, comparing phase 1 and 2 of the post-liberalisation periods it has come down from the higher values of 2005-06. The average score for three phases shows that it is high during the phase 1 of the post-liberalisation period (Figure 2).

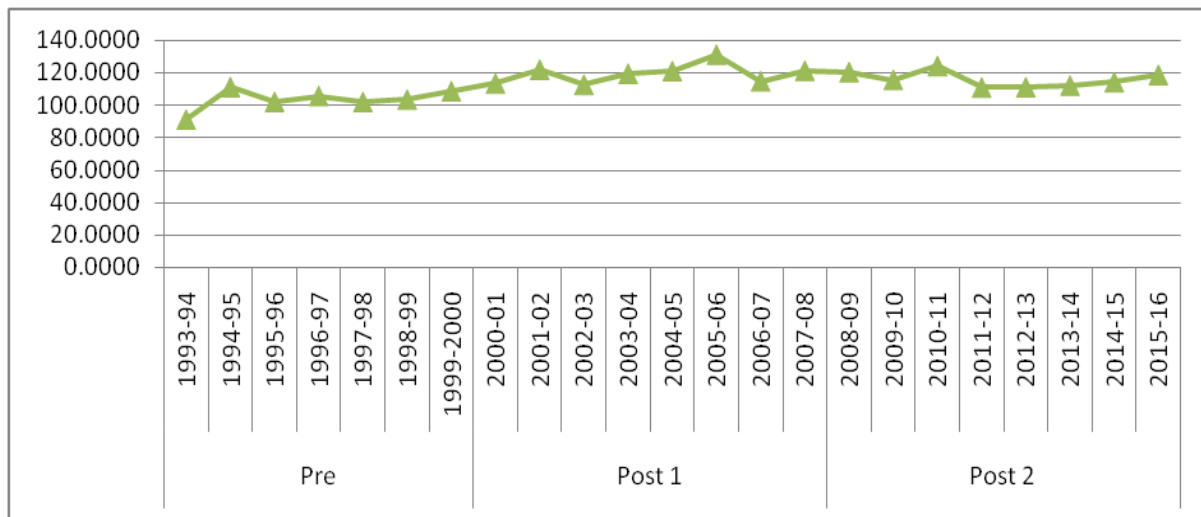


**Figure 2**

Expense Ratio for Public Sector General Insurance Companies

**Combined Ratio**

The mean combined ratio for the public general insurance companies has been above 100 for all the years barring 1993-94. However, post-liberalisation period shows a nature of stability. This is also true with respect to the expense ratio; the average value has come high for the phase 1. Figure 3 shows this in detail.

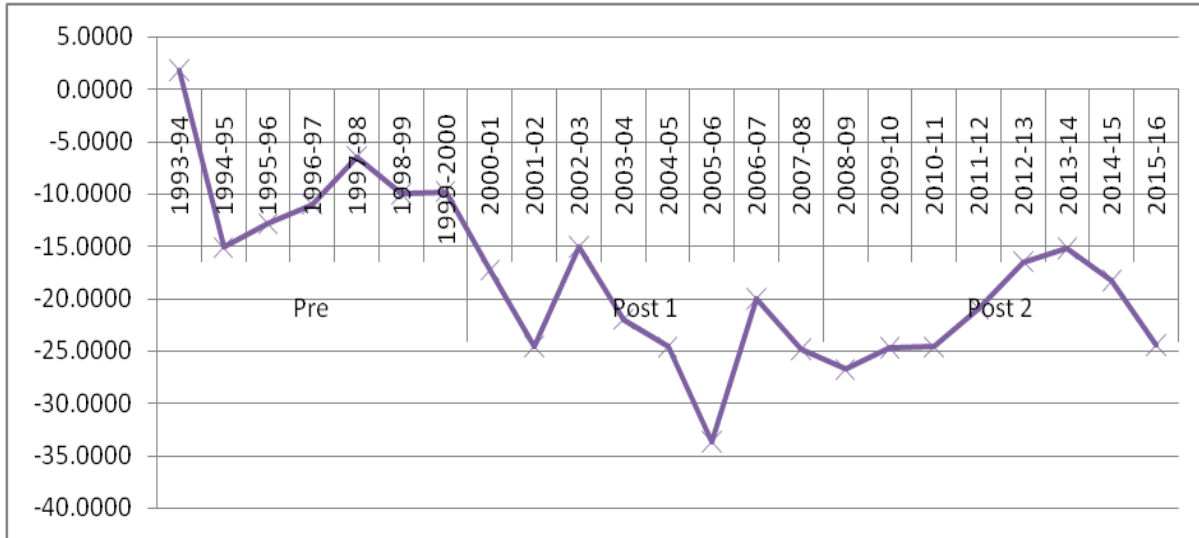


**Figure 3**

Combined Ratio for Public Sector General Insurance Companies

**Underwriting Results Ratio**

The average ratio of underwriting results for the public sector general insurance companies is shown in Figure 4. It implies that the value has come down drastically and is placed in negative score area during the period under review.



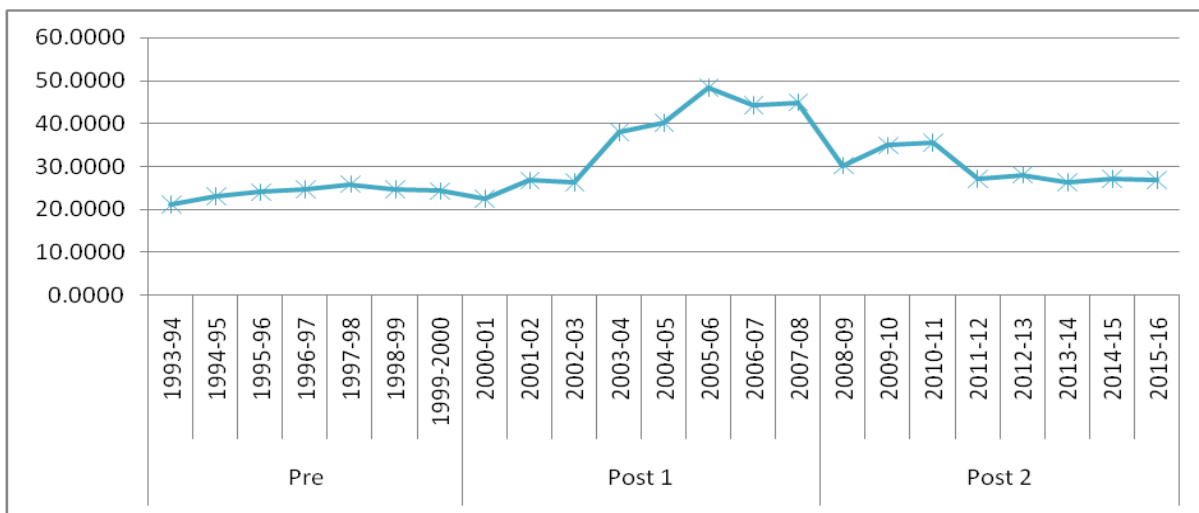
**Figure 4**

***Underwriting Results Ratio for Public Sector General Insurance Companies***

But the period after liberalisation exhibits lot of fluctuations. The impact of liberalisation is clear with low average score value, which subsequently shows some kind of recovery and again falls to the lowest level which further shows low recovery type oscillations. As in the cases of Phase 1, phase 2 have also shown identical swinging like recovery and heavy fall.

**Investment-Income Ratio**

In terms of the investment income ratio, the average value in each period has shown an increasing trend and this is more so in the last three years of phase 1. This increasing trend is neutralised in the second phase of the post-liberalisation. This is clearly visualised in Figure 5.

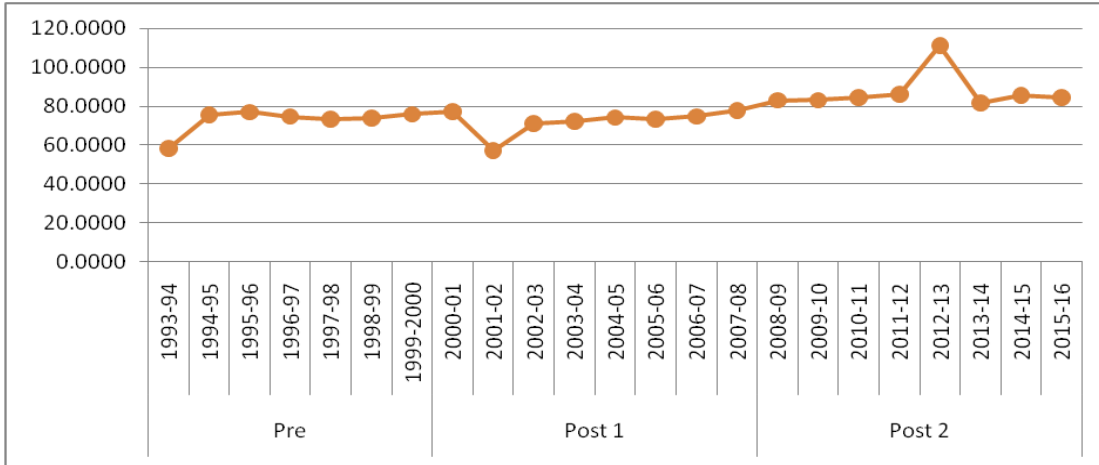


**Figure 5**

***Investment Income Ratio for Public Sector General Insurance Companies***

### Net Retention Ratio

The average net retention value for the public sector general insurance companies for the pre-liberalisation and the post-liberalisation phase 1 have remained more or less constant (Figure 6). The phase 2 has shown a remarkable improvement in the values of the net retention ratio and hence the mean score has also come to be the highest level for this period.

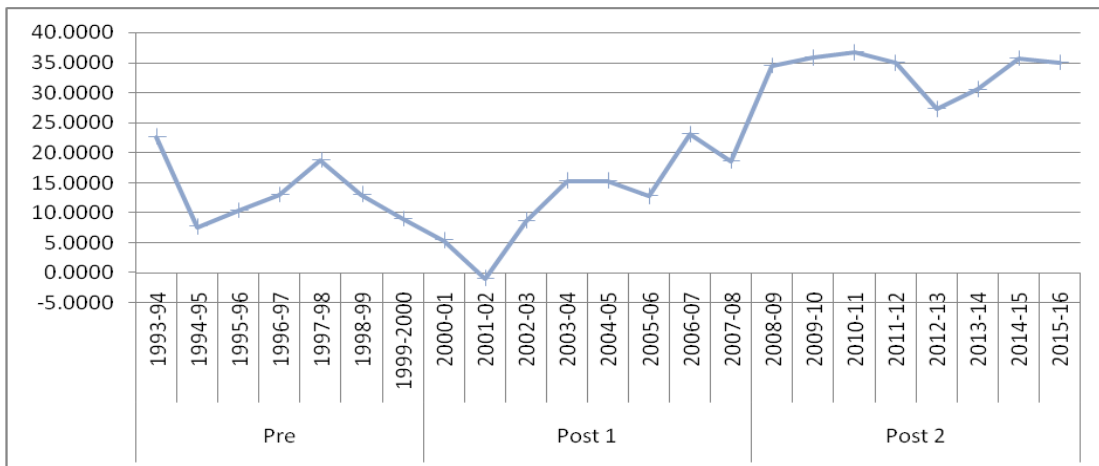


**Figure 6**

### Net Retention Ratio for Public Sector General Insurance Companies

#### Operating Ratio

As is evident from Figure 7, the operating ratio has heavily fluctuated with an increasing trend. A big increase in the operating ratio score is seen in the post-liberalisation phase 2, which indicates that the average value has more than doubled in comparison to the scores of the other two phases.



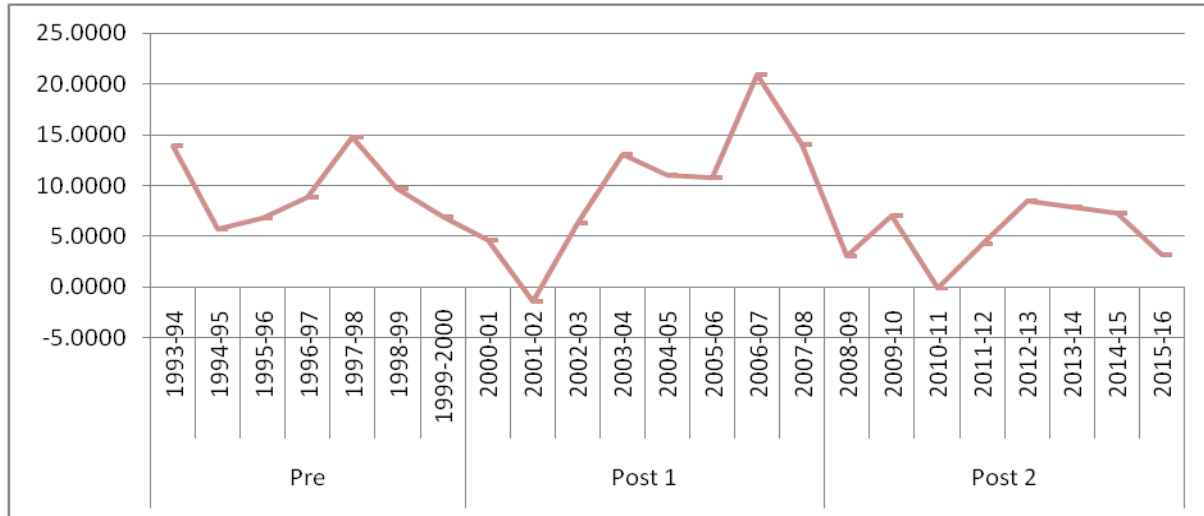
**Figure 7**

### Operating Ratio for Public Sector General Insurance Companies

#### Net Earnings Ratio

The highest fluctuation is visible in the case of the net earnings ratio of which the value has come down from its initial peak. This is a clear indication that the earning capacity of the public sector general

insurance companies has come down during the post liberalisation period(Figure 8). The biggest turn around started from the last part of phase 1 and then the falling nature continues unabated.

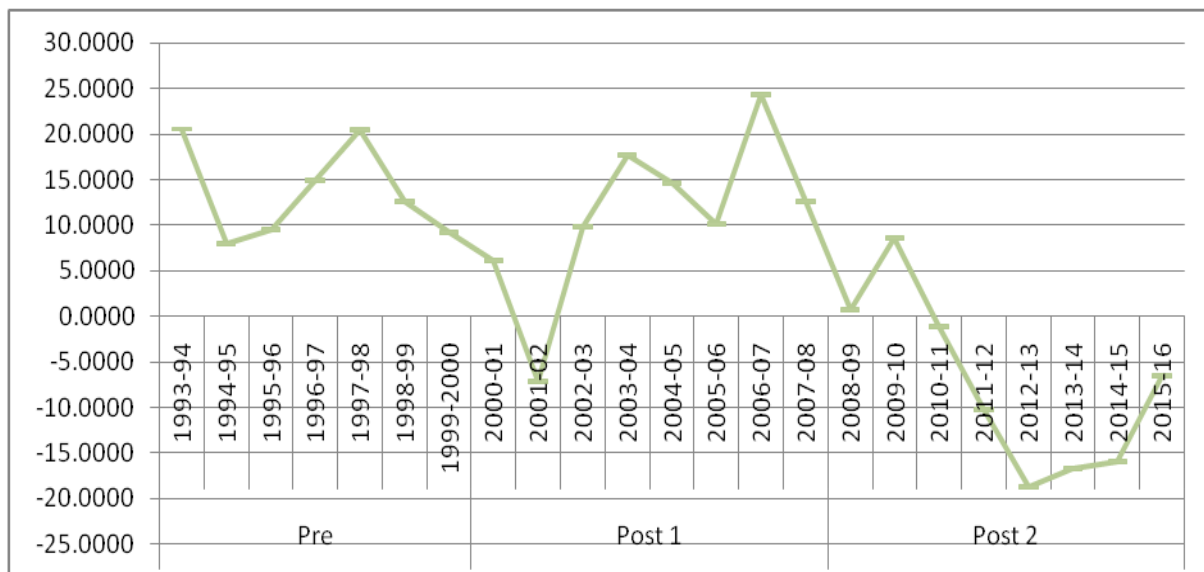


**Figure 8**

Net Earnings Ratio for Public Sector General Insurance Companies

**Return on Equity Ratio**

It shows that the return on equity ratio for the public sector general insurance companies has also come down compared to the pre-liberalisation phase. Here also big fluctuation is identifiable irrespective of different phases. The issue becomes worse during phase 2 of the post-liberalisation era as this period has generated negative scores for the return on equity ratio and average of this comes to -7.44. Figure 9 shows the details for the three phases.



**Figure 9**

Return on Equity Ratio for Public Sector General Insurance Companies

Profitability ratio scores for the public general insurance companies show towards differences in the average values for the three phases. This is further corroborated with the aid of Mann-Whitney U test and based on these the Null Hypothesis "The profitability indicators of the public sector general insurance companies are same for the different phases "is rejected. Hypotheses test results of each indicator is shown in Figure 10. All the hypotheses tests indicate that the profitability ratio for the public sector general insurance companies has declined since the advent of liberalisation. The entry of the private players and competitors have led to the poor performance of profitability indicators for the public general insurance companies for most of the years.

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ClaimR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	The distribution of ExpenseR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	The distribution of CombinedR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
4	The distribution of UnderwritingR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
5	The distribution of InvestmentIncomeR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
6	The distribution of NetRetentionR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
7	The distribution of OperatingR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
8	The distribution of NetEarningR is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.007	Reject the null hypothesis.
9	The distribution of RoER is the same across categories of Period1.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

**Figure 10**

Hypothesis Testing Summary for Profitability Ratios of Public Sector General Insurance Companies: A Pre-Post Comparison

**Empirical Analysis of Profitability: -Pre and Post Reform Periods**

Table 1 gives the Multiple Correlation Coefficient estimates for the selected profitability indicators for the public-sector general insurance companies during the pre-reform period. Among the various factors,



underwriting ratio has positive correlation, whereas for claim, expense and net retention ratio have negative correlations.

**Table 1 Correlation:**  
**Pre-Liberalisation for Public Sector General Insurance Companies**

		RoER	ClaimR	ExpenseR	UnderwritingR	InvestmentIncomeR	NetRetentionR
RoER	Correlation Coefficient	1.000	-.727**	-.435*	.757**	.078	-.270
	Sig. (2-tailed)	.	.000	.021	.000	.693	.164
	N	28	28	28	28	28	28
ClaimR	Correlation Coefficient	-.727**	1.000	.093	-.778**	.023	-.016
	Sig. (2-tailed)	.000	.	.638	.000	.909	.934
	N	28	28	28	28	28	28
ExpenseR	Correlation Coefficient	-.435*	.093	1.000	-.459*	-.138	.355
	Sig. (2-tailed)	.021	.638	.	.014	.484	.064
	N	28	28	28	28	28	28
UnderwritingR	Correlation Coefficient	.757**	-.778**	-.459*	1.000	.013	-.115
	Sig. (2-tailed)	.000	.000	.014	.	.947	.560
	N	28	28	28	28	28	28
InvestmentIncomeR	Correlation Coefficient	.078	.023	-.138	.013	1.000	-.408*
	Sig. (2-tailed)	.693	.909	.484	.947	.	.031
	N	28	28	28	28	28	28
NetRetentionR	Correlation Coefficient	-.270	-.016	.355	-.115	-.408*	1.000
	Sig. (2-tailed)	.164	.934	.064	.560	.031	.
	N	28	28	28	28	28	28

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

During the post-reform period, the correlation is positive and significant with respect to expense ratio and investment income ratio and it is negative for net retention ratio and claim ratio.

**Table 2 Correlations**  
**Post-Liberalisation for Public Sector General Insurance Companies**

		RoER	ClaimR	ExpenseR	UnderwritingR	InvestmentIncomeR	NetRetentionR	
Spearman's rho	RoE Ratio	Correlation Coefficient	1.000	-.257*	.450**	-.126	.579**	-.598**
		Sig. (2-tailed)	.	.040	.000	.320	.000	.000
		N	64	64	64	64	64	64
	Claim Ratio	Correlation Coefficient	-.257*	1.000	-.106	-.588**	.075	.115
		Sig. (2-tailed)	.040	.	.404	.000	.555	.366
		N	64	64	64	64	64	64
	Expense Ratio	Correlation Coefficient	.450**	-.106	1.000	-.484**	.624**	-.388**
		Sig. (2-tailed)	.000	.404	.	.000	.000	.002

	N	64	64	64	64	64	64
Underwriting Ratio	Correlation Coefficient	-.126	-.588**	-.484**	1.000	-.459**	.102
	Sig. (2-tailed)	.320	.000	.000	.	.000	.422
	N	64	64	64	64	64	64
Investment Income Ratio	Correlation Coefficient	.579**	.075	.624**	-.459**	1.000	-.268*
	Sig. (2-tailed)	.000	.555	.000	.000	.	.033
	N	64	64	64	64	64	64
Net Retention Ratio	Correlation Coefficient	-.598**	.115	-.388**	.102	-.268*	1.000
	Sig. (2-tailed)	.000	.366	.002	.422	.033	.
	N	64	64	64	64	64	64

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Here the variation in profitability for the public general insurance companies has been worked out by step-wise regression techniques both during pre and post liberalisation periods. The model summary is given in Table 3. The result shows good level of prediction with R of 0.757 and R Square of 0.573, which shows that the independent variables altogether explain 57.3 percent variation of the dependent variable.

**Table 3**  
**Model Summary: Pre-Liberalisation for Public Sector General Insurance Companies**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757 <sup>a</sup>	.573	.557	4.86381

a. Predictors: (Constant), Underwriting R

Table 4 shows the ANOVA values, which are significantly related showing the independent variables predict the dependent variable well and hence the model seems to be a good fit.

**Table 4.ANOVA:**  
**Pre-Liberalisation for Public Sector General Insurance Companies**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	826.786	1	826.786	34.949	.000 <sup>b</sup>
	Residual	615.074	26	23.657		
	Total	1441.860	27			

a. Dependent Variable: RoER

b. Predictors: (Constant), UnderwritingR

Table 4 also shows the Regression results. The Underwriting score of the regression model explains 55.7 percent variation (see also Table 4) with an unstandardized coefficient value of 0.691 (Table 4). This implies that none of the indicators other than this explains any significant influence on the profitability of the public sector general insurance companies during the pre-liberalisation period.

**Table 5 Coefficients<sup>a</sup>:**

***Pre-Liberalisation for Public Sector General Insurance Companies***

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	19.876	1.402		14.178	.000	16.994	22.757
	UnderwritingR	.691	.117	.757	5.912	.000	.451	.931

a. Dependent Variable: RoER

The model summary for the public general insurance companies during the post liberalisation period is shown in Table 4.13. The ANOVA estimates in Table 4.14 are significantly related.

**Table 6**

***Model Summary: Post-Liberalisation for Public Sector General Insurance Companies***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.598 <sup>a</sup>	.357	.347	12.29105
2	.671 <sup>b</sup>	.450	.432	11.46332
3	.699 <sup>c</sup>	.488	.463	11.15066

a. Predictors: (Constant), InvestmentIncomeR

b. Predictors: (Constant), InvestmentIncomeR, ClaimR

c. Predictors: (Constant), InvestmentIncomeR, ClaimR, NetRetentionR

**Table 7**

***ANOVA: Post-Liberalisation for Public Sector General Insurance Companies***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5210.012	1	5210.012	34.487	.000 <sup>b</sup>
	Residual	9366.331	62	151.070		
	Total	14576.343	63			
2	Regression	6560.475	2	3280.237	24.962	.000 <sup>c</sup>
	Residual	8015.869	61	131.408		
	Total	14576.343	63			
3	Regression	7116.116	3	2372.039	19.077	.000 <sup>d</sup>
	Residual	7460.228	60	124.337		
	Total	14576.343	63			

a. Dependent Variable: RoER

b. Predictors: (Constant), InvestmentIncomeR

c. Predictors: (Constant), InvestmentIncomeR, ClaimR

d. Predictors: (Constant), InvestmentIncomeR, ClaimR, NetRetentionR

The estimated values of the step-wise regression are shown in Table 8. In the first step, the investment income ratio-based regression model explains about 34.7 percent variation in return on equity. In the second step, the claim ratio along with the investment income ratio explain 43.2 percent of the total variation. The third step with one more variable viz. net retention ratio along with the other two and the three together explains 46.3 percent of the total variation.

**Table 8 Coefficients<sup>a</sup>:**  
**Post-Liberalisation for Public Sector General Insurance Companies**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-29.900	5.614		-5.326	.000	-41.123	-18.678
	InvestmentIncomeR	.964	.164	.598	5.873	.000	.636	1.292
2	(Constant)	29.631	19.294		1.536	.130	-8.950	68.212
	InvestmentIncomeR	.982	.153	.609	6.408	.000	.675	1.288
	ClaimR	-.699	.218	-.305	-3.206	.002	-1.134	-.263
3	(Constant)	43.368	19.861		2.184	.033	3.640	83.096
	InvestmentIncomeR	.930	.151	.577	6.163	.000	.628	1.232
	ClaimR	-.682	.212	-.297	-3.216	.002	-1.106	-.258
	NetRetentionR	-.169	.080	-.198	-2.114	.039	-.329	-.009

a. Dependent Variable: RoER

### Summary and findings

The insurance sector in India in the post-liberalised period makes a dichotomy of public and private insurance companies. But, one thing is obvious in the present general insurance structure in India, the private sector is domineering in the areas of profitability aspects. The general insurance sector now is not only an act of protection from the losses and misery from random shocks but it also acts with social commitment for engendering the idea of protecting the poor masses from financial misery. Conclusions of the study have been classified into specific points connected to profitability of general insurance companies in the pre and post liberalization period.

Profitability ratio scores for the public general insurance companies show towards differences in the average values for the three phases. The profitability ratio for the public sector general insurance companies has declined since the advent of liberalisation.

Empirical result based on Multiple Correlation Coefficient for the selected profitability indicators for the public-sector general insurance companies during the pre-reform period showed that underwriting ratio has positive correlation, whereas for claim, expense and net retention ratio have negative correlations. During the post-reform period, the correlation is positive and significant with respect to expense ratio and investment income ratio and it is negative for net retention ratio and claim ratio.

Based on the Regression results, it could be inferred that none of the indicators other than underwriting results explained any significant influence on the profitability of the public sector general insurance companies during the pre-liberalisation period. For the post liberalisation period, in the first step, the investment income ratio-based regression model explains variation in return on equity. In the second

step, the claim ratio along with the investment income ratio explains the total variation. The third step with one more variable viz. net retention ratio along with the other two and the three together explains the total variation.

An evaluation of profitability ratio scores for the public and private general insurance companies showed a clear sector-wise difference in the average scores. Government patronage helps the public general insurance companies an edge over the private insurers in terms of most of these indicators. However, the private sector is catching up and, in some cases, it is even surpassing that the public insurers because of the professional management and dedicated quest for survival. Irrespective of everything the private sector has emerged as one of the major competitors for the public sector general insurance companies in the post liberalisation era.

The study showed that for the public sector, the correlation is positive and significantly related for the expense and investment income ratios and negative for expenses and net retention ratios. For the private general insurance companies, the correlation is positive and significant for the underwriting results ratio and negative for expense ratio.

The step-wise regression results during the post-liberalisation period for the public sector general insurance companies showed that the investment income ratio forms the regression model in the first step. In the second step, claim ratios along with the investment income ratio have entered the regression model. Other variables in the model are insignificantly related with the profitability of public sector general insurance companies.

The underwriting results ratio has entered the regression model in the first step, the investment income ratio entered the regression model in the second step and expense ratio entered the model in the third step. No other variable has shown significant connection with the profitability of private sector general insurance companies.

### **Policy Suggestions**

The government needs to take necessary steps to increase partnership with an integration of Micro Finance Institutions, Government and other institutions to reach well in the under- covered market.

The contemporary insurance agenda is not conducive to the poor and hence it is not served the poor owing to high costs, restrictive access and low transparency. Lack of unfamiliarity and trust on the service providers resulted in low penetration among the low-income groups.

Periodic committees to be set up to identify the resilience and silent rules in the existing regulations of the IRDAI.

Need new rules for the Insurance Marketing Firms (IMF), also for the firms that are working as distribution channels. This would help to attain more insurance penetration in the country.

Need to provide some kind of financial subsidy to protect the collective premium falling insurance companies, particularly to that of the specialised PSU insurers like Agricultural Insurance Co of India and Export Credit Guarantee Corporation of India.

### **Contribution of the Researcher**

Impact of liberalisation on the Indian insurance industry is an extensively researched area. However, the studies relating to the profitability aspect integrating the secondary and primary literature since

liberalisation of this sector is new in this respect. Temporal analysis of the profitability indicators of public sector companies are really worth mentioning contributions. This piece of research is definitely useful to the insurance industry and the policy makers alike.

### **Further Scope for Research**

The importance of this research work is that it sheds light to several research issues related to profitability of public sector general insurance companies. Region-specific studies relating to profitability may help to understand the efficiency-inefficiency syndrome so as to work out clearly the economic and structural efficiencies for comparison of firms from regional to national and national to global levels. An area which is having high currency in the general insurance research is the social inclusion in general insurance. One such area which needs to be considered is micro-insurance. This is intrinsically important in a country with high rural base with many poor people. A product-wise evaluation, particularly of the new insurance products, of the general insurance both private and public insurers will be a useful research exercise.

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