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A STUDY ON PROFITABILITY OF PRIVATE SECTOR GENERAL INSURANCE COMPANIES IN INDIA DURING THE LIBERAL PERIOD (2001-2011)

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ABSTRACT

The insurance sector in India was opened by the Govt. of India in year 2000 for the domestic private sector companies with a maximum of 26 % foreign holdings. Liberal policies adopted from year 2000 onwards led to the entry of several large private sector insurers in collaboration with global insurance majors. The existing four public sector undertakings and the newly formed private sector companies initiated massive growth along with cutthroat competition in every segment of general insurance sector throughout the last decade. An attempt has been made in this study, to make a comprehensive analysis of the profitability of some selected private sector companies during 2001-2011. Various performance parameters affecting profitability have been studied with suitable ratio analysis and the interrelations between them have been identified with correlation coefficient matrix analysis. The results have been tested with appropriate test statistic. It has been identified that the expense ratios of the private sector companies during the period under study are significantly different. This unfavorable occurrence had been mitigated by the insignificant variation in claims ratios and investment income ratios. Therefore, no significant deviation in underwriting results, operating results and net earnings in relation to net premium collected by the private insurers is found. On the contrary, significant deviation has been identified in the most popular profitability measure *i.e* the Return on Equity which had been influenced by the variation in net worth that arises particularly due to significant fluctuation in underwriting risk retention policies adopted by the private insurers in various segment of general insurance business during the period under study.

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ABSTRACT

The insurance sector in India was opened by the Govt. of India in year 2000 for the domestic private sector companies with a maximum of 26 % foreign holdings. Liberal policies adopted from year 2000 onwards led to the entry of several large private sector insurers in collaboration with global insurance majors. The existing four public sector undertakings and the newly formed private sector companies initiated massive growth along with cutthroat competition in every segment of general insurance sector throughout the last decade. An attempt has been made in this study, to make a comprehensive analysis of the profitability of some selected private sector companies during 2001-2011. Various performance parameters affecting profitability have been studied with suitable ratio analysis and the interrelations between them have been identified with correlation coefficient matrix analysis. The results have been tested with appropriate test statistic. It has been identified that the expense ratios of the private sector companies are significantly different. This unfavorable occurrence had been mitigated by the insignificant variation in claims ratios and investment income ratios. Therefore, no significant deviation in underwriting results, operating results and net earnings in relation to net premium collected by the private insurers is found. On the contrary, significant deviation has been identified in the most popular profitability measure *i.e* the Return on Equity which had been influenced by the variation in net worth that arises particularly due to significant fluctuation in underwriting risk retention policies adopted by the private insurers in various segment of general insurance business during the period under study.

INTRODUCTION

The Indian Insurance market was restricted for the private companies till 2000. Prior to year 2000, the General Insurance Corporation (GIC) of India was entrusted with the responsibility of superintending, controlling, and ensuring smooth and healthy conduct of the general insurance business in India along with its four subsidiaries in all the zones in India, namely: National Insurance Co.Ltd. (Kolkata), United India Insurance Co. Ltd. (Chennai), New India Assurance Co.Ltd. (Mumbai) and Oriental Insurance Co. Ltd. (New Delhi). These public companies tend to focus their efforts on maintaining a strong status and market position within their local region rather than competing with one another.

Following the recommendations of the Malhotra Committee (1994); in December 7, 1999, the government passed the IRDA Act to abolish its own monopoly in the insurance business. Insurance Regulatory & Development Authority (IRDA) which was incorporated as a statutory body in April 2000, opened up the insurance market in August 2000 with the invitation for application for registrations for private companies allowing collaboration with foreign companies to enter in to the market with a maximum 26% stake. In December, 2000; the four subsidiaries (National, United, New India & Oriental) of GIC were restructured as independent companies and at the same time GIC was instructed to stop writing direct business and was converted into a national re-insurer.

LIBERAL PERIOD – YEAR 2000 ONWARDS

Many large and well established world class private companies have entered into the general insurance sector in collaboration with suitable domestic partner to grab new opportunities. 4 companies registered in year 2000-01. Presently we have 13 general insurers from the private sector excluding the specialized institutions. Competition was introduced and the benefit was seen in terms of wider choice of insurance products became available for the consumers and product pricing became highly competitive. The private general insurance companies which are selected for this study are given below along with their foreign partners and year of commencement of operation:

Name	Domestic partner	Foreign partner	Year of Operation
Bajaj Allianz General Insurance Co.	Bajaj	Allianz, Germany	2001-02
ICICI Lombard General Insurance Co.	Industrial Credit & Investment Corporation (ICICI)	Fairfax through its affiliates, Canada	2001-02
IFFCO-TOKIO General Insurance Co.	Indian Farmers' Fertiliser Cooperative (IFFCO)	Millea Asia Pte. Ltd., Japan	2000-01
Reliance General Insurance Co.	Reliance	-	2000-01
Royal Sundaram Alliance Insurance	Sundaram Finance	Royal Sun Alliance, UK	2000-01
TATA AIG General Insurance Co.	TATA	American International Assurance Co., USA	2000-01

The benefits of liberalization can be seen with increase in volumes of premium of both the public and private sector, market penetration and insurance density; innovation in all areas, like underwriting, product pricing, marketing, policyholder servicing etc. **Table I** shows the comparative statement of growth and market share occupied by public and private sector general insurance companies in terms of gross direct premium collected during 2001-02 to 2010-11. The gross direct premium collected by 4 public companies increased from Rs. 11917.59 crores in 2001-02 to Rs. 26417.21 crores in 2010-11. However the private companies collectively recorded an increase in gross direct premium from Rs. 467.65 crores in 2001-02 to Rs. 17424.63 crores in 2010-11. A strong contention prior to opening up of the insurance sector was whether the acquisition of the market shares by the private companies is at the expense of the public sector enterprises. From Table I we find that the gross direct premium increased in every year under study in both the public and the private sector. Thus increase in gross direct premium denotes that the public sector enterprises have obviously not lost its growth momentum and the market share of the private players has come out of an enlarged market. This enlargement of the market is mostly due to the efforts of the private players themselves.

TABLE I
COMPARATIVE STATEMENT OF GROWTH AND MARKET SHARE OCCUPIED BY PUBLIC AND PRIVATE SECTOR GENERAL INSURANCE COMPANIES IN TERMS OF GROSS DIRECT PREMIUM COLLECTED DURING 2001-02 TO 2010-11

YEAR	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	MEAN
PUBLIC SECTOR											
NO. OF COMPANIES OPERATIVE	4	4	4	4	4	4	4	4	4	4	
GROSS DIRECT PREMIUM	11917.59	13520.44	14284.65	14948.82	15976.44	17283.45	17813.71	19107.31	21838.85	26417.21	17310.85
INCREASE	-	1602.85	764.21	664.17	1027.62	1307.01	530.26	1293.6	2731.54	4578.36	1611.07
GROWTH (%)	-	13.45	5.65	4.65	6.87	8.18	3.07	7.26	14.30	20.96	9.38
MARKET SHARE (%)	96.22	90.92	86.35	81.00	74.87	66.65	61.84	60.80	60.98	60.26	73.99
PRIVATE SECTOR											
NO. OF COMPANIES OPERATIVE	7	8	8	8	8	8	8	10	12	13	
GROSS DIRECT PREMIUM	467.65	1349.8	2257.83	3507.62	5362.66	8646.57	10991.89	12321.09	13977	17424.63	7630.67
INCREASE	-	882.15	908.03	1249.79	1855.04	3283.91	2345.32	1329.2	1655.91	3447.63	1884.11
GROWTH (%)	-	188.63	67.27	55.35	52.89	61.24	27.12	12.09	13.44	24.67	55.86
MARKET SHARE (%)	3.78	9.08	13.65	19.00	25.13	33.35	38.16	39.20	39.02	39.74	26.01
INDUSTRY TOTAL											
NO. OF COMPANIES OPERATIVE	11	12	12	12	12	12	12	14	16	17	
GROSS DIRECT PREMIUM	12385.24	14870.24	16542.48	18456.44	21339.10	25930.02	28805.60	31428.40	35815.85	43841.84	24941.52
INCREASE	-	2485.00	1672.24	1913.96	2882.66	4590.92	2875.58	2622.8	4387.45	8025.99	3495.18
GROWTH (%)	-	20.06	11.25	11.57	15.62	21.51	11.09	9.11	13.96	22.41	15.18
MARKET TOTAL (%)	100	100	100	100	100	100	100	100	100	100	100

SOURCE: Compiled from the published annual reports of IRDA from 2001-02 to 2010-11.

OBJECTIVES OF THE STUDY

The primary objective of the study is to make a comprehensive analysis of profitability of the private sector general insurance companies in the post-liberal period and also identifying the factors affecting profitability.

HYPOTHESIS OF THE STUDY

To achieve the specific objective of this study, the main hypothesis formulated is:

H_0 – There is no significant difference in profitability of the private sector general insurance companies in the liberal period.

H_1 –The profitability of the private sector general insurance companies significantly differ among themselves during the liberal period.

RESEARCH METHODOLOGY

Keeping in view the objective and hypotheses formulated for this study the methodology/techniques which has been used for collection and analysis of data in this study are as follows:

A) ***Collection of data:***

The data used in this study has been collected from secondary sources i.e. the published annual reports of the selected private insurance companies stated above and from the publications including annual report of the Insurance Regulatory & Development Authority (IRDA) during 2001-2011.

B) ***Analysis of data:***

For analyzing data the technique of ratio analysis, simple mathematical tools like percentages, averages, median, standard deviation etc. and statistical techniques like Karl Pearson's correlation analysis has been used. The't' test, χ^2 test has been applied at appropriate places. The IBM SPSS (Version 19) statistical software has been used for the purpose of data analysis. The hypotheses regarding profitability have been tested by the application of Kruskal - Wallis test. To asses the profitability performance of the general insurance companies the following ratios (expressed in percentage form) has been analyzed:

1. Expense Ratio (commission & expenses of management to net written premium).

2. Claim Ratio (Net incurred claims to net written premium).

3. Underwriting Results Ratio (Underwriting profit/loss to net written premium).
4. Investment Income Ratio (Investment income to net written premium).
5. Net Retention Ratio (Net written premium to gross direct premium).
6. Operating Ratio (Net Profit before tax to net written premium).
7. Net Earning Ratio (Net Profit after tax to net written premium).
8. Return on Equity Ratio (Net Profit after tax to net worth).

CONCEPT OF PROFITABILITY AND ITS DRIVERS

Profits can be defined as the difference between total earnings from all earning assets and total expenditure on managing entire asset-liabilities portfolio. The term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage. Profitability depicts the relationship of the absolute amount of profit with various other factors. Profitability is the most important and reliable indicator of the ability of an insurance company to raise its income level.

To analyze the drivers of profitability in respect of an insurer, it is useful to decompose Return on Equity (ROE) into its main components. Profits are determined first by underwriting performance i.e. the core business of an insurer which is influenced by product pricing, risk selection, claims management, and marketing and administrative expenses; and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. The pre-tax profit margin is the sum of the underwriting result and the investment result. An insurer’s ROE is determined by profit after taxes realized for each unit of net premiums (or profit margin) and by the amount of capital funds used to finance and secure the risk exposure of each premium unit (solvency).

FINDINGS OF THE STUDY WITH DETAILED DISCUSSION

The observations on the findings of the study are as follows:

1. Ratio Analysis

A. Expense Ratio (ER)

Expenses of a general insurance company largely comprises of commission expense and expenses of management. Commission expense is derived after considering commission payable and receivable on reinsurance business accepted or ceded respectively. Expenses of Management are generally operating expenses which include employees' remuneration and benefits, office and administrative expenses, etc. Expense ratio is calculated as a percentage of net premium that reflects the percentage of revenue which is being utilized on account of commission and management expenses. This ratio is a pointer of the cost effectiveness and productivity. A higher ratio reflects financial instability of the business as a decrease in revenue may result in losses, whereas lower ratio is an indicator of better operational performance.

TABLE II

Expense Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	28.94	119.51	63.06	271.06	97.55	108.95	114.85	103.25	83.45
2002-03	28.31	55.57	20.29	-10.02	38.36	37.28	28.30	32.80	22.17
2003-04	27.55	-9.42	21.15	23.10	33.51	37.22	22.19	25.33	16.64
2004-05	22.36	19.22	22.08	23.63	33.52	38.52	26.56	23.00	7.64
2005-06	21.96	23.51	23.58	23.93	33.22	38.63	27.47	23.76	6.80
2006-07	25.66	21.25	28.11	20.12	34.77	44.28	29.03	26.89	9.14
2007-08	28.57	23.86	26.75	36.12	35.75	43.50	32.43	32.16	7.32
2008-09	31.03	28.49	26.69	36.40	37.65	49.14	34.90	33.72	8.20
2009-10	29.43	24.90	27.70	31.18	35.08	46.97	32.54	30.31	7.85
2010-11	29.71	20.62	26.65	36.75	33.82	35.77	30.55	31.77	6.18
MEAN	27.35	32.75	28.61	49.23	41.32	48.03	37.88	37.04	9.66
MEDIAN	28.44	23.69	26.67	27.56	34.93	41.07	29.79	28.00	6.41
S.D.	3.08	34.21	12.44	79.14	19.83	21.88	27.28	23.85	26.91

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

In the early stages of insurance business private companies incurred high operating expenses to install high quality systems and process. Expenses are also incurred to pay higher salaries to choose the highest-calibre staff from the government owned public sector undertakings. **Table II** shows the comparative ER of the six general insurance companies selected from the private sector during the post liberal period. All the six private companies under study registered the maximum ER in the year 2001-02 except Bajaj Allianz with an ER of 28.94 %. A consistency in maintaining ER by Bajaj Allianz has been witnessed during the period under study that can be further established by the standard deviation of its ER which is only 3.08. Barring 2001-02, the average ER considering all the six companies was highest in 2008-09 (34.90 %) whereas the deviation between the ERs was least in 2010-11 (6.18).

Among the companies under study, except 2001-02, the highest ER of 55.57 % was registered by ICICI Lombard in the year 2002-03. The standard deviation of ER in between the companies during the period under study ranges from 83.45 % in 2001-02 to 6.18 % in 2010-11 whereas individually the companies registered a standard deviation ranging from 3.08 % (Bajaj Allianz) to 79.14 % (Reliance General). A wide range of ER registered by the private companies selected under study denotes a significant deviation in expense policies adopted by them in paying commission, salary, incentives, advertising expenses and other operating expenses.

The result of Kruskal–Wallis test also depict a significant variation in ER of the private companies during 2001-02 to 2010-11 as the calculated value of '***H'*** statistic is 24.37 which is far beyond the table value of 11.07 with (k-1) or 6-1=5 degree of freedom at 5 % level of significance.

B. Claim Ratio (CR)

Claim ratio is expressed as a percentage of total net incurred claims to net premium underwritten. A lower CR signifies the efficiency of the risk underwriting team and also a better claims management mechanism.

TABLE III
Claim Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	15.16	16.32	32.6	68.09	31.65	28.28	32.02	29.97	19.22
2002-03	59.01	39.89	40.7	99.48	53.68	47.41	56.70	50.55	22.22
2003-04	52.59	53.96	54.63	68.73	57.33	44.84	55.35	54.30	7.79
2004-05	47.22	48.23	50.79	61.91	56.4	48.31	52.14	49.55	5.82
2005-06	58.68	53.04	51.03	62.01	54.45	47.55	54.46	53.75	5.22
2006-07	53.44	56.1	68.65	34.34	52.3	49.81	52.44	52.87	11.06
2007-08	53.96	69.02	68.42	56.13	55.93	46.77	58.37	56.03	8.71
2008-09	67.77	79.59	78.47	76.71	61.7	60.54	70.80	72.24	8.58
2009-10	70.32	82.22	73.95	82.99	67.46	68.34	74.21	72.14	6.88
2010-11	73.63	90.03	79.09	115.29	68.59	62.03	81.44	76.36	19.12
MEAN	55.18	58.84	59.83	72.57	55.95	50.39	58.79	57.40	7.52
MEDIAN	56.32	55.03	61.53	68.41	56.17	47.93	56.03	56.25	6.87
S.D.	16.44	22.11	16.20	22.77	10.21	11.13	13.87	13.74	5.28

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table III discloses the comparative CR of the six private companies selected for this study. An increasing trend in CR is witnessed in every company under study. All the companies recorded the highest CR in the year 2010-11 except Tata AIG which recorded the highest CR in the year 2009-10. The average CR of all the six companies taken together increased from 32.02 % in 2001-02 to 81.44 % in 2010-11. The average CR during the period under study was highest in Reliance General (72.57 %) and was lowest in Tata AIG (50.39 %). This discloses that to earn a net premium of Rs. 100; Rs. 72 and Rs. 50 are incurred by Reliance General and Tata AIG respectively. This signifies a comparatively better claims management mechanism adopted by Tata AIG and obviously good quality of policies underwritten by them. The CRs of the companies under study was much more tuned in 2005-06 as the standard deviation was lowest (522) in this year among all the years under study.

The result of the Kruskal-Wallis test discloses that the deviation in CRs of all the six companies is not significant during the period under study as the calculated value of 'H' statistic is 9.32 which do not exceed the χ^2 value of 11.07 at (k-1) or 6-1=5 degrees of freedom at 5 % level of significance.

C. Underwriting Results Ratio (URR)

Underwriting results indicate the performance of an insurance company from core insurance business. To ascertain the underwriting performance, first net underwritten premium is adjusted with the increase/decrease in unexpired risk reserve to arrive at net premium (earned). Thereafter, underwriting profit/loss of a general insurer is ascertained after deducting the commission expenses, claims incurred and management expenses from net premium (earned). The underwriting results ratio is calculated by dividing underwriting results by net underwritten premium.

TABLE IV

Underwriting Results Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	-32.42	-122.88	-67.17	-288.09	-93.63	-102.11	-117.72	-97.87	89.12
2002-03	-2.07	-34.05	-4.57	-41.1	-21.59	-19.27	-20.44	-20.43	15.52
2003-04	0.39	13.9	-0.61	-15.63	-6.24	-6.02	-2.37	-3.32	9.79
2004-05	7.81	0.84	1.79	-8.02	-3.98	0.79	-0.13	0.82	5.40
2005-06	3.29	-4.65	-2.21	10.86	-3.65	-0.15	0.58	-1.18	5.77
2006-07	1.55	-3.82	-2.39	-6.07	-1.43	-1.61	-2.30	-2.00	2.55
2007-08	-1.77	-4.82	-8.43	-20.49	-8.05	-4.46	-8.00	-6.44	6.60
2008-09	-4.55	-14.83	-11.12	-13.91	-9.86	-9.68	-10.66	-10.49	3.66
2009-10	-4.19	-12.36	-8.75	-16.26	-7.81	-13.63	-10.50	-10.56	4.39
2010-11	-10.31	-16.48	-15.1	-40	-11.38	-14.81	-18.01	-14.96	11.03
MEAN	-4.23	-19.92	-11.86	-43.87	-16.76	-17.10	-18.96	-16.93	13.39
MEDIAN	-1.92	-8.59	-6.50	-15.95	-7.93	-7.85	-9.25	-7.89	4.53
S.D.	11.05	38.28	20.11	87.16	27.58	30.61	35.44	29.31	26.82

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

The underwriting results ratio of the six private general insurance companies under study for the period from 2001-2010 are presented in **Table IV.** As they recorded underwriting losses in most of the years therefore the URR calculated are negative in value. It had been identified that Bajaj Allianz recorded a consequent series of underwriting profit from 2003-04 to 2006-07 whereas IFFCO Tokio and Tata AIG emerges with underwriting profit in the year 2004-05 only. Reliance General recorded profit in underwriting results only in 2005-06 whereas ICICI

Lombard accounted for a profit in underwriting operations in 2003-04 and 2004-05 out of which underwriting profit generated by ICICI Lombard in 2003-04 was the highest among all the six companies that recorded positive results during the period under study.

The Kruskal-Wallis test was also performed to judge the significance of variation in URRs recorded by the private companies during the period under study. As the value of 'H' is 9.20 and does not exceed the χ^2 value of 11.07, so we can conclude that the deviation in URR is insignificant.

D. Investment Income Ratio (IIR)

Income from investments creates a significant impact on profitability of an insurance company. Insurers collect huge amount of money as premium and invest it efficiently to maximize its return. The investment income ratio is determined by investment income to net written premium. This ratio indicates the effectiveness and efficiency of investment decisions.

TABLE V
Investment Income Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	17.00	51.87	81.49	630.64	27.51	34.02	140.42	42.95	241.22
2002-03	11.47	33.42	18.25	121.80	17.49	12.31	35.79	17.87	42.87
2003-04	10.68	19.61	11.26	47.02	11.43	11.18	18.53	11.35	14.36
2004-05	8.11	16.01	8.01	22.58	6.67	9.92	11.88	9.02	6.19
2005-06	6.28	12.18	7.49	27.06	7.10	9.94	11.68	8.72	7.84
2006-07	9.51	9.46	9.83	6.34	8.44	9.64	8.87	9.49	1.33
2007-08	10.64	12.73	9.97	7.78	9.01	9.92	10.01	9.95	1.66
2008-09	10.70	18.33	11.90	10.47	11.31	12.17	12.48	11.61	2.94
2009-10	11.82	20.00	12.10	10.60	12.29	16.11	13.82	12.20	3.55
2010-11	12.08	13.12	11.08	14.07	9.82	12.88	12.18	12.48	1.53
MEAN	10.83	20.67	18.14	89.84	12.11	13.81	27.57	15.98	30.73
MEDIAN	10.69	17.17	11.17	18.33	10.57	11.68	12.33	11.43	3.51
S.D.	2.81	12.83	22.45	193.16	6.24	7.37	40.41	10.32	74.95

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table V exhibits the results of investment income to net written premium ratio of the selected private insurers during 2001-2010. The results indicate that the IRR of all the six companies exhibited a decreasing trend in IRR up to 2006-07 where the average IRR was 8.87 %. Again, from the year 2007-08, the IRR of all the companies increased and it continued up to 2009-10. Latter in 2010-11, the IRR of ICICI Lombard (13.12 %), IFFCO Tokio (11.08 %), Royal Sundaram (9.82 %) and Tata AIG (12.88 %) decreased as compared to the IRR of 2009-10. But, Bajaj Allianz (12.08 %) and Reliance General (14.07 %) continued to maintain their growth in IRR in the year 2010-11. The standard deviation of all the six companies was lowest (1.33) in the year 2006-07 signifying the best tuned position in of the private insurers in respect of return on investments followed by 1.53 in 2010-11 and 1.66 in 2007-08.

The result of the Kruskal-Wallis test discloses the insignificant variation in IRR of the private insurers during the period under study as the value of 'H' (10.32) is less than the χ^2 value of 11.07 with (k-1) or 6-1=5 degree of freedom at 5% level of significance.

E. Net Retention Ratio (NRR)

Net retention ratio signifies an insurer's ability to bear risk. It is expressed as a percentage of business retained (net of reinsurance ceded) in relation to gross direct premium. As per the latest IRDA guidelines issued in April 2007every insurer has to compulsorily cede a minimum of 15% (earlier it was 20%) of their business to the GIC, the national reinsurer. In general, the companies having a stronger capital base and huge amount of reserve & surpluses are able to retain more of their portfolios, whereas the companies, with relatively lower capitalization (and hence lower capacity to retain risks) have resorted to higher utilization of reinsurance.

TABLE VI
Net Retention Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11
(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	59.21	39.00	18.62	3.03	51.67	45.97	36.25	42.49	21.36
2002-03	60.97	21.03	32.83	10.38	59.19	54.15	39.76	43.49	21.43
2003-04	60.10	26.67	41.38	21.45	60.64	54.91	44.19	48.15	17.15
2004-05	56.28	36.72	47.27	38.32	60.97	57.95	49.59	51.78	10.41

2005-06	54.92	46.36	53.58	34.21	64.73	58.80	52.10	54.25	10.65
2006-07	58.21	48.54	50.73	55.28	65.12	58.52	56.07	56.75	5.97
2007-08	73.64	53.82	65.39	68.71	76.76	67.47	67.63	68.09	7.95
2008-09	76.61	62.21	64.46	73.09	83.19	71.30	71.81	72.20	7.75
2009-10	79.43	70.23	67.97	72.17	82.64	67.93	73.40	71.20	6.21
2010-11	80.51	71.34	70.23	69.76	84.14	74.63	75.10	72.99	5.96
MEAN	65.99	47.59	51.25	44.64	68.91	61.16	56.59	56.21	10.13
MEDIAN	60.54	47.45	52.16	46.80	64.93	58.66	54.09	55.41	7.42
S.D.	10.25	17.21	16.79	26.84	11.74	8.89	14.53	12.04	6.61

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table VI presents the net retention ratio of the selected private general insurers during 2001-2010. Among them, the maximum NRR of 84.14 % was recorded by Royal Sundaram in the year 2010-11. Again, the average NRR of Royal Sundaram was maximum (68.91 %) followed by Bajaj Allianz (65.99 %), Tata AIG (61.16 %), IFFCO Tokio (51.25 %), ICICI Lombard (47.59 %) and Reliance General (44.64 %). The year wise average NRR of all the companies denote an increasing trend ranging from 36.25 % in 2001-02 to 75.10 % in 2010-11. This signifies the increase in ability of the private insurers in assuming underwriting risk.

The results of Kruskal-Wallis test indicates the significant deviation in NRR registered by the private companies during the period under study as the value of 'H' statistic (12.88) is greater than the χ^2 value of 11.07 at (k-1) or 6-1=5 degree of freedom at 5 % level of significance.

F. Operating Ratio (OPR)

The operating ratio is calculated by dividing the operating profit before tax with net premium underwritten. Operating profit of an insurer represents both the underwriting results (*i.e* profit/loss arising out of underwriting risks) and income from investments.

TABLE VII
Operating Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11
(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	-15.77	-101.28	13.02	313.62	-66.72	-76.46	11.07	-41.25	154.01

2002-03	9.46	9.66	13.38	79.61	-4.20	-10.20	16.29	9.56	32.34
2003-04	11.10	32.54	10.65	30.37	5.13	3.85	15.61	10.88	12.63
2004-05	16.06	16.79	10.07	11.64	2.65	9.39	11.10	10.86	5.15
2005-06	11.71	7.43	5.04	37.94	3.42	7.98	12.25	7.71	12.90
2006-07	11.26	5.52	7.31	0.44	6.98	7.95	6.58	7.15	3.56
2007-08	9.58	7.32	1.61	-12.18	0.89	5.10	2.05	3.36	7.72
2008-09	7.46	0.01	0.78	-3.58	1.46	1.62	1.29	1.12	3.57
2009-10	9.12	6.84	3.90	-6.34	4.51	2.03	3.34	4.21	5.34
2010-11	2.68	-2.71	-3.94	-26.82	-1.55	-2.40	-5.79	-2.56	10.55
MEAN	7.27	-1.79	6.18	42.47	-4.74	-5.11	7.38	2.20	18.00
MEDIAN	9.52	7.08	6.18	6.04	2.06	2.94	8.83	6.11	2.75
S.D.	8.78	36.29	5.72	100.04	22.02	25.73	7.10	15.51	34.67

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table VII highlights the operating ratio of the six private sector insurers during the post liberal period. The average operating ratio was highest in 2002-03 (16.29 %) and was lowest in 2010-11 (-5.79 %). All the companies' suffered net loss in the year 2010-11 except Bajaj Allianz with an operating ratio of 2.68 %. Reliance General faced a consequent net loss commencing from 2007-08 to 2010-11 whereas Bajaj Allianz recorded operating profit from 2002-03 to 2010-11. The standard deviation between the mean of operating ratios of all the six companies in different year is 7.10 which implies the closeness in fluctuations of OPRs among the companies under study.

The results of the Kruskal-Wallis test supports the above observations as the value of 'H' statistic (8.02) is lower than the χ^2 value of 11.07 at (k-1) or 6-1=5 degree of freedom at 5 % level of significance.

G. Net Earning Ratio (NER)

The Net Earning Ratio has been calculated by dividing net profit after tax to net premium underwritten. This ratio is an acceptable measure of profitability of the insurance business. This ratio discloses the net result of the underwriting and investment activities.

TABLE VIII

Net Earning Ratio of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	-11.43	-77.30	12.72	288.09	-66.75	-76.46	11.48	-39.09	140.55
2002-03	5.31	7.66	9.08	74.36	-4.20	-10.20	13.67	6.49	30.66
2003-04	7.58	24.48	7.18	26.06	5.13	8.11	13.09	7.85	9.50
2004-05	9.82	15.06	6.27	9.41	2.48	4.71	7.96	7.84	4.46
2005-06	7.38	6.86	3.06	25.86	2.91	4.04	8.35	5.45	8.79
2006-07	7.25	4.71	4.67	0.32	5.44	5.19	4.60	4.95	2.30
2007-08	6.03	5.78	0.97	-12.38	0.88	3.06	0.72	2.02	6.80
2008-09	4.74	1.12	0.28	-3.74	0.85	0.72	0.66	0.79	2.70
2009-10	6.13	6.22	2.56	-3.53	4.10	1.16	2.77	3.33	3.67
2010-11	1.87	-2.65	-2.61	-26.98	-2.09	-0.52	-5.50	-2.35	10.66
MEAN	4.47	-0.81	4.42	37.75	-5.13	-6.02	5.78	1.81	16.29
MEDIAN	6.08	6.00	3.87	4.87	1.68	2.11	6.28	4.37	1.90
S.D.	5.96	27.89	4.54	92.27	21.87	25.23	6.23	14.02	32.24

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table VIII presents the Net Earning Ratio of all the six private sector insurers during the liberal period under study. The average NER of 13.67 % was the highest in the year 200-03 as against -5.50 % in 2010-11 being the lowest average NER recorded by all the six private companies. Individually, Reliance General recorded the maximum average NER of 37.75 % followed by Bajaj Allianz 4.47 %, IFFCO Tokio 4.42 %, ICICI Lombard -0.81 %, Royal Sundaram -5.13 % and Tata AIG -6.02 %. The deviation between the NER of the companies under study was minimum (2.30) in the year 2006-07 followed by 2.70 in 2008-09 and 3.67 in 2009-10. It has been ascertained that the deviation in NER of IFFCO Tokio & Bajaj Allianz was least during the period under study as the S.D is only 4.54 and 5.96 respectively. The mean of the standard deviations of the individual private insurers under study is 6.23 which indicate to an insignificant variation in maintaining NER of the private insurers. The result of the Kruskal-Wallis test also supports this observation as the value of 'H' (6.89) is far less than the χ^2 value of 11.07 at 6-1=5 dof at 5 % level of significance.

H. Return on Equity (ROE)

Return on Equity is the most popular measure of profitability of a business concern irrespective of its nature of business. It measures the return available for accruing to owners' capital. It is calculated by dividing net profit after tax to Net Worth.

TABLE IX

Return on Equity of Private Sector General Insurance Companies during 2001-02 to 2010-11

(Percentage)

YEAR	BAJAJ ALLIANZ	ICICI LOMBARD	IFFCO TOKIO	RELIANCE GENERAL	ROYAL SUNDARAM	TATA AIG	MEAN	MEDIAN	S.D.
2001-02	-8.79	-7.75	1.62	6.19	-18.87	-22.33	-8.32	-8.27	11.11
2002-03	8.77	3.11	5.94	11.60	-3.54	-10.46	2.57	4.53	8.23
2003-04	16.52	14.07	8.66	6.79	6.17	12.39	10.77	10.53	4.20
2004-05	26.36	19.38	11.75	4.21	3.85	9.79	12.56	10.77	8.84
2005-06	19.31	13.49	5.22	9.40	6.17	6.98	10.10	8.19	5.40
2006-07	18.68	8.62	9.14	0.63	14.88	8.85	10.13	9.00	6.18
2007-08	18.29	9.56	2.36	-27.27	2.66	6.22	1.97	4.44	15.48
2008-09	14.15	1.47	0.55	-6.56	2.54	1.25	2.23	1.36	6.69
2009-10	15.23	8.60	5.35	-5.01	12.20	1.94	6.39	6.98	7.32
2010-11	5.17	-5.25	-7.40	-27.12	-6.74	-1.13	-7.08	-6.00	10.87
MEAN	13.37	6.53	4.32	-2.71	1.93	1.35	4.13	3.13	5.49
MEDIAN	15.88	8.61	5.29	2.42	3.26	4.08	4.48	4.69	5.04
S.D.	9.72	8.62	5.42	14.14	9.73	10.60	7.33	6.65	2.83

Source: IRDA Annual Reports from 2001-02 to 2010-11; Annual reports of Bajaj Allianz, ICICI Lombard, IFFCO Tokio, Reliance General, Royal Sundaram & Tata AIG from 2001-02 to 2010-11.

Table IX discloses the comparative return on equity of the selected private insurers during 2001-2010. Bajaj Allianz recorded the highest ROE of 26.36 % in 2004-05. It is also the maximum of all the ROEs registered by the six private insurers during 2001-2010. ICICI Lombard recorded the second highest ROE of 19.38 % in the year 2004-05 which is also the maximum of all the ROEs recorded by ICICI Lombard during 2001-2010. The maximum ROE registered by IFFCO Tokio in the year 2004-05 is 11.75 % whereas Reliance General recorded its highest ROE of 11.60 % in 2002-03. The maximum ROE of Royal Sundaram and Tata AIG was recorded in the year 2006-07 (14.88 %) and 2003-04 (12.39 %) respectively. Among the selected six private insurers, the average ROE of all the years under study was maximum in case of Bajaj Allianz (13.37 %) whereas a negative as well as the lowest average ROE of -2.71 % was recorded by Reliance General.

A high degree of fluctuation in ROE can be witnessed from the standard deviation calculated considering the ROEs recorded by the private insurers in between themselves and in between years. This observation is consequently supported by the result of Kruskal-Wallis test as the value of 'H' is 12.38 which is greater than the χ^2 value of 11.07 at (k-1) or 6-1=5 degree of freedom at 5 % level of significance. So, it can be concluded that the variation in ROEs registered by the private insurers during the study period is significant.

2. Karl Pearson's Correlation Analysis

Correlation analysis helps to measure the magnitude and direction of the relationship between two or more variables. Interdependence among variables is a common characteristic of most multivariate techniques and correlation matrix is a table used to display correlation coefficients between these variables. t-test has been used as a parametric tool for testing the significance of correlation coefficient. The study aimed at identifying the most important variable or variables which have higher significant association with the dependent variable.

TABLE X
KARL PEARSON'S CORRELATION COEFFICIENT MATRIX OF SELECTED PRIVATE GENERAL INSURANCE COMPANIES FROM 2001-02 TO 2010-11

BAJAJ ALLIANZ							**TATA**						
	ER	CR	URR	IIR	NRR	OPR		ER	CR	URR	IIR	NRR	OPR
ER	1						ER	1					
CR	0.18	1					CR	-0.61	1				
URR	-0.54	0.57	1				URR	-0.95^{**}	0.60	1			
IIR	0.71^{*}	-0.48	-0.92^{**}	1			IIR	0.96^{**}	-0.51	-0.98^{**}	1		
NRR	0.76^{*}	0.60	-0.16	0.28	1		NRR	-0.52	0.86^{**}	0.53	-0.48	1	
OPR	-0.46	0.62	0.99^{**}	-0.88^{**}	-0.08	1	OPR	-0.94^{**}	0.64^{*}	0.99^{**}	-0.97^{**}	0.57	1
ICICI LOMBARD							**IFFCO TOKIO**						
	ER	CR	URR	IIR	NRR	OPR		ER	CR	URR	IIR	NRR	OPR
ER	1						ER	1					
CR	-0.65^{*}	1					CR	-0.41	1				
URR	-0.98^{**}	0.61	1				URR	-0.98^{**}	0.41	1			
IIR	0.88^{**}	-0.71^{*}	-0.90^{**}	1			IIR	0.96^{**}	-0.61	-0.97^{**}	1		
NRR	-0.17	0.80^{**}	0.13	-0.41	1		NRR	-0.53	0.93^{**}	0.52	-0.71^{*}	1	
OPR	-0.93^{**}	0.54	0.97^{**}	-0.79^{**}	-0.02	1	OPR	0.26	-0.88^{**}	-0.21	0.45	-0.91^{**}	1
RELIANCE							**ROYAL SUNDARAM**						
	ER	CR	URR	IIR	NRR	OPR		ER	CR	URR	IIR	NRR	OPR
ER	1						ER	1					
CR	-0.09	1					CR	-0.84^{**}	1				

URR	-0.96**	-0.06	1				URR	-0.99**	0.80**	1			
IIR	0.94**	0.00	-0.98**	1			IIR	0.90**	-0.70*	-0.94**	1		
NRR	-0.42	0.04	0.54	-0.66*	1		NRR	-0.50	0.81**	0.49	-0.46	1	
OPR	0.89**	-0.05	-0.94**	0.99**	-0.75*	1	OPR	-0.99**	0.82**	0.99**	-0.90**	0.50	1

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

In **Table X,** the degree of association, i.e, the strength and direction of correlation coefficients, between the selected variables and private general insurers' profitability is studied for the liberal period and is presented in the form of correlation matrices.

It can be seen that almost in every company under study except Royal Sundaram, the Underwriting Results Ratio (URR) is insignificantly correlated with Claims Ratio (CR). Correlation between the URR & CR of Royal Sundaram is 0.80 which is significant at 1 % level. This proves that the underwriting results of the private companies are loosely affected by the claims accepted by them. On the contrary, it is witnessed that in every companies under study except Bajaj Allianz, the URR is related with a high degree of negative correlation with the Expense Ratio (ER). Correlation between URR & ER of ICICI Lombard, Reliance General, Tata AIG, IFFCO Tokio, Royal Sundaram are -0.98, -0.96, -0.95, -0.98 and -0.99 respectively. All the correlation coefficient mentioned above are significant at 5 % level. This proves that the variations in underwriting results of the private companies are largely influenced by the operating expenses incurred by them.

Again, the operating results vary significantly with the underwriting performance in every company except IFFCO Tokio. The correlation coefficient between OPR & URR of Bajaj Allianz (0.99), ICICI Lombard (0.97), Reliance General (-0.94), Tata AIG (0.99) and Royal Sundaram (0.99) are significant at 5 % level. Insignificant negative correlation of -0.21exist between OPR & URR of IFFCO Tokio. However, the variations in OPR of IFFCO Tokio are influenced by the variation in CR & NRR. Correlation coefficient between OPR & CR of IFFCO Tokio is -0.8 and OPR & NRR is -0.91. Both the coefficients are significant at 5 % level.

It has been witnessed in some private insurers that the increase in claims is correlated with the increase in net retention. The correlation coefficient between NRR & CR of ICICI Lombard (0.80), Tata AIG (0.86), IFFCO Tokio (0.93) and Royal Sundaram (0.81) are significant at 5 % level. This implies that the increase/decrease in claims incurred is correlated with the increase/decrease in retention of underwriting business.

Again, a significant negative correlation exists between URR & IIR of all the six private companies. Correlation coefficient between IIR & URR of Bajaj Allianz (-0.92), ICICI Lombard (-0.90), Reliance General (-0.98), Tata AIG (-0.98), IFFCO Tokio (-0.97) and Royal Sundaram (-0.94) are significant at 5% level. This signifies that a more emphasize in investing activities is resulting into poor underwriting results and vice versa. Correlation coefficient between IIR & URR of Bajaj Allianz (-0.92), ICICI Lombard (-0.90), Reliance General (-0.98), Tata AIG (-0.98), IFFCO Tokio (-0.97) and Royal Sundaram (-0.94) are significant at 5% level.

CONCLUSION

It has been identified that due to separate growth strategies adopted by the private general insurers, the expense ratios are significantly different during the period under study. However, insignificant variation in claims ratio and investment income ratios signifies uniformity in risk underwriting practices and efficiency in investment management. Therefore, significant variation in claims ratios had been mitigated by the insignificant variation in claims ratios and investment income ratios. Therefore, no significant deviation in underwriting results, operating results and net earnings in relation to net premium collected by the private insurers is established. On the contrary, significant variation has been identified among the ROEs of the selected private insurers during the period under study. The variation in ROE had been influenced by the variation in net worth that arises particularly due to significant fluctuation in underwriting risk retention policies adopted by the private insurers in various segment of general insurance business during the period under study. Higher risk retention ratio leads to maximization of net worth as it implies that substantial portion of the premium collected from underwriting business is retained by the insurer whereas a lower retention ratio leads to outflow of collected premium to the reinsurer that reduces the net worth position of an insurer. Therefore, we reject the null hypothesis and conclude that the profitability of the private sector general insurance companies significantly differ among themselves during the liberal period.

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