

Performance Assessment of General Insurance Companies in India in Liberal Period: Case Study on National Insurance Company

Abstract

Insurance companies are taking financial risk and supplying capital to the corporate bodies and in reform period it provide wide range of products to the customers with grievance redressal system via IRDA. National Insurance Company is one of the leading public sector company whose progress in reform period is much ahead than public sector insurance industry as a whole.

Keywords: GIC, IRDA, Auto-Correlation, Ln

Introduction

Insurance is the backbone of a country's risk management system. The insurance providers offer a variety of products to businesses and individuals in order to provide protection from risk and to ensure financial security.

India's rapid rate of economic growth over the past decade has been one of the most significant developments in the global economy. This growth has its roots in the introduction of economic liberalization and policy reforms in the early 1990s, which has allowed India to exploit its economic potential. Insurance has a very important role in this process.

The reforms contributed to increase the awareness of the insuring public about the wider range of choice of insurance products and the price offered by the competing insurers in the market. The customers know well about their rights and remedies, availability of various grievance redressal mechanisms, progressive decontrol and detariffication of pricing of insurance products, particularly in the non-life insurance segments. The technical know-how, expertise and wide experience of multinationals that have joined with the Indian companies have revolutionized almost all aspects of insurance industry in India.

Presently there are 4 public insurer (excluding the specialized insurers) and 17 private insurer (excluding the standalone health insurers) operating in the two sectors of general insurance in India. The initiatives taken by the private players are very competitive and have given immense competition to the public sector.

Measurement of Public Sector General Insurance Companies' Performance in India

We have measured the performance of the public sector as a whole and the individual performance of National Insurance Company in respect of net premium earnings and net incurred claims of Public sector insurance companies as a whole and National Insurance Company specific through trend equation analysis. Trend Equations have been adopted to ascertain the trend growth rates in respect of total income and total expenditure. In this section, the estimated trend growth rates of the above mentioned parameters are reported and analysed for measuring the performance of the public sector as a whole and the National Insurance Company. After necessary adjustments in the data sets the growth rates of different performance parameters of the National Insurance Company and the public sector as a whole have been estimated both in nominal and real terms for the period 2001-02 to 2010-11 from estimated coefficient of the chosen trend equation. The growth rates have been directly measured from the estimated coefficient of 't' (i.e., time) in case of exponential (with normalization of time i.e., shifting the origin to the mid-point of the time period) trend equation. The form of equation to estimate the growth rates of different performance indicators of these general insurance companies



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during whole period is $\text{Ln}Y_t = a + bt + ct^2$, where Y_t is the variable whose overtime growth is measured and 't' is the time variable. Ln implies natural logarithm i.e., Log_e , where 'b' is the coefficient of growth rate and 'c' is the coefficient of rate of acceleration / deceleration that are to be estimated.

From the estimated linear trends on the smoothed values of point to point (i.e., annual) growth rates (results are not reported here), it is seen that in many cases the estimated trend coefficient is statistically insignificant, which implies constancy of annual growth rates over time. Hence, in these cases exponential trend equation has been chosen for estimation of trend growth rates. In other cases when the trend coefficient of the linear trend estimated on the point to point growth rates are statistically significant, log-quadratic equation has been selected. After a careful selection of the trend equation, the problems of auto correlation has been checked by using Durbin-Watson test and necessary adjustment has been made in the model using either first order or second order auto-regressive scheme depending on their suitability to correct the presence of auto correlation problem in disturbance term, if any.

Performance Measurement of the Public Sector As A Whole

The collective effort of the four public sector companies have been analysed and measured here by estimating the trend growth rates of different performance parameters from their nominal and real values during 2001-02 to 2010-11.

Total Income Analysis

From Table-1 and Table-3, it is found that trend lines fitted to nominal and real figures of different components of total income gave us a good fit, as all adjusted values of R^2 (\bar{R}^2) were statistically significant at 1 % probability level. Further, from the values of DW statistic it is found that in no case the problem of auto correlation problem in the disturbance term was present. Among the growth rates of different components of total income, the growth rate (both in nominal and real terms) of the public sector was highest in income from investments (5.9 % and 2.7 % in nominal and real terms respectively) though a minor but significant rate of deceleration (0.3 % and 0.5 % in nominal and real terms respectively) was measured during the period under study. On the other hand, the annual growth rate (in nominal terms) of net premium earnings from all segments taken together was grown in the public sector at a rate of 4.5 % with an acceleration of 0.1 % though that acceleration was not identified when measured in real terms. From Table-1 we can see that the total income of the public sector was grown at a constant rate of 5.2 % in nominal terms. But when this parameter was measured in real terms a significant deceleration rate of 0.1 % was identified with the annual growth rate of 1.9 %.

Total Expenditure Analysis

It can be seen from Table-2 and Table-4 that trend lines fitted to nominal and real values of different components of total expenditure gave us a good fit (except real figures of operating expenses and net incurred claims from marine, motor and 'others'

segment) as all adjusted values of R^2 (\bar{R}^2) were statistically significant at 1 % probability level. Further, from the values of DW statistic it was found that in no case the problem of auto correlation problem in the disturbance term was present. It can be seen that in both nominal and real terms, the growth rate of net commission (17.0 % and 13.9 % in nominal and real term respectively) was much higher than the growth rate of net incurred claims from all segments taken together (4.9 % and 1.7 % in nominal and real term respectively) and operating expenses (4.3 % in nominal term). But the annual growth rate of total expenditure was quite similar with that of net incurred claims (all segments) in both nominal and real terms. This indicates to the presence of significantly huge amount of net incurred claims (from all segments) in every year under study in comparison to operating expenses and net commission expenses in the total expenditure of the public sector that can be seen from Table-9. The total expenditure in the public sector was grown at a rate of 5.0 % with an acceleration of 0.2 % in nominal terms. Again in real terms, it was found growing at a constant rate of 1.8 % during the period under study.

Performance Measurement of National Insurance Company Ltd.

National Insurance Company Limited is a state owned general insurance company in India. The company was incorporated in December 6, 1906 with its registered office in Kolkata. Consequent to passing of the General Insurance Business Nationalization Act in 1972, National became a subsidiary of General Insurance Corporation of India (GIC) which is fully owned by the Government of India. After the notification of the General Insurance Business and its India's largest GIC Company (Nationalization) Amendment Act, on 7th August 2002; National Insurance has been de-linked from its holding company GIC and presently operating as an independent insurance company wholly owned by Govt. of India. The paid-up share capital of NICL is Rs. 100 crores.

National Insurance Company Ltd. is one of the leading public sector insurance companies in India, carrying out non life insurance business. NICL's network of about 1000 offices, manned by more than 16,000 skilled personnel, is spread over the length and breadth of the country covering remote rural areas, townships and metropolitan cities.

The annual growth rate of different performance parameters comprising total income and total expenditure of National Insurance have been presented here. In Table 4.5 & 4.7 the growth rate of the parameters forming part of total income have been presented in nominal and real terms respectively along with the results of estimated trend equations which are adjusted R^2 (i.e. \bar{R}^2), Durbin Watson Statistic (DW), acceleration or deceleration of the parameter, if any. In Table 4.6 and 4.8, the results of the estimated trend equations of the parameters comprising Total Expenditure have been presented in nominal and real terms respectively.

Total Income Analysis

From Table-5, it can be seen that the trend lines fitted to the nominal amount of net premium earnings from all segments taken together and net premium earnings from each segment except fire and marine segment gave us good fit, as all the values of \bar{R}^2 were statistically significant at 1 % probability level and in no cases auto correlation problem was found to be present. However, from Table-7, it is seen that trend lines fitted to the real amount of net premium earnings from all segments taken together and net premium earnings from each of the five segment gave us good fit, as all the adjusted values of R^2 were statistically significant at 1 % probability level and in no cases auto correlation problem was found to be present.

Besides the abovementioned parameters, trend lines fitted to the nominal and real amount of all other parameters mentioned in Table-5 & Table-7 gave us good fit as all the values of \bar{R}^2 were statistically significant at 1 % probability level.

In both nominal and real terms, the growth rate of income from investments was highest (7.2 % in nominal term and 4.1 % along with a deceleration of 0.3 % in real term) in National Insurance followed by net premium earnings from all segments (4.7 % and 1.5 % in nominal and real term respectively) and other income (2.6 % and -0.8 % in nominal and real term respectively). The annual growth rate of total income was found to be growing at a rate of 5.4 % and 2.1 % (with a deceleration of 0.1 %) in nominal and real term respectively. The similarity in growth rates of net premium earnings (all segments taken together) and total income indicates that the volume of total net premium earnings from all segments was proportionately higher than any other components of total income which can be further established from Table 4.28.

Total Expenditure Analysis

From Table-6 it is seen that except marine segment, trend lines fitted to the nominal amount of net incurred claims from each of the five segments and all segments taken together gave us good fit, as all the adjusted values of R^2 were statistically significant either at 1 %, 5 % or 10 % probability level and in no cases the problem of autocorrelation exist. However, when these parameters were measured in real terms (Table-8) we fitted trend lines which gave us good fit in every individual segments (except inflation adjusted figures of net incurred claims in fire and marine segment) including net incurred claims from all segments taken together.

Besides the abovementioned parameters trend lines fitted to the nominal and real amount of all other parameters mentioned in Table-6 & Table-8 gave us good fit as all the values of \bar{R}^2 were statistically significant at 1 % probability level except the figures of operating expenses (in real terms) which was significant at 5 % probability level.

The annual growth rate of operating expenses in National Insurance (4.5 % and 1.3 % in nominal and real terms respectively) estimated at a constant rate which was significant at 1 % probability level. The growth rate of net commission increased at

a decelerating rate during the period under study that indicates that the company was gradually reducing its commission outflow by utilizing other popular distribution channels like direct selling, corporate agents, Group selling, Brokers, Bancassurance etc. for selling their products instead of solely depending on commission based selling agents. Again, it can be seen that the annual growth rate of total expenditure was quite similar with the growth rate of net incurred claims in both nominal and real term respectively. This indicates that during the period under study the volume of claims from all segments taken together was much higher than any other components of expenditure as depicted in Table -10.

Conclusion

From the above analysis it is found that in total income components growth rates both nominal and real terms of income from investment is highest, followed by growth rate of net premium income and other income respectively in both the public sector insurance industry and the National insurance company. But all the income components growth rates are higher in National Insurance Company than Industry as a whole. But in expenditure analysis it is found that growth rate of commission is highest followed by claim incurred and then operating expenses in the industry as a whole. But in National Insurance company all the expenditure growth rates are lower than industry and growth rate of claim is highest followed by operating expense and commission expense. Therefore we can conclude that National Insurance company in the insurance industry is in a better financial position.

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Table- 1

Table Showing Estimated Growth Rate (In Nominal Terms) of Different Performance Parameters Comprising Total Income Of The Public Sector As A Whole For The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{K} Rate (%)	Acceleration/ Deceleration (%)
1	Net Premium Earning (All Segemnts)	0.991 [*] (0.02630)	1.046	4.5 [*] (0.001)	0.1 [*] (0.000)
2	Income From Investments	0.855 [*] (0.15100)	1.878	5.9 [*] (0.008)	-0.3 ^{***} (0.002)
3	Other Income	0.816 [*] (0.05262)	1.510	2.9 [*] (0.004)	-
	Total Income	0.973 [*] (0.04837)	1.480	5.2 [*] (0.003)	-

Notes:

^{**} implies significant at 1% probability level, ^{***} implies significant at 5% probability level, ^{****} implies significant at 10% probability level; Figures within the parenthesis are standard errors. ⁺All the values of DW statistic indicate the absence of autocorrelation problem in the disturbance term. ^a Acceleration/ deceleration in growth rate is represented by the estimated coefficient c of the log-quadratic trend $y_t = a + bt + ct^2 + u_t$. ^k Growth rates are represented in the forms of percent per annum.

Table-2

Table Showing Estimated Growth Rate (In Nominal Terms) of Different Performance Parameters Comprising Total Expenditure of the Public Sector As A Whole for the Period From 2001-02 To 2010-11

SL	Parameter	\bar{R}^2	DW ⁺	Growth \bar{K} Rate (%)	Acceleration/ Deceleration (%)
1	Net Incurred Claims (All Segments)	0.977 [*] (0.04655)	1.667	4.9 [*] (0.003)	0.2 [*] (0.001)
2	Net Commission	0.891 [*] (0.38744)	1.612	17.0 [*] (0.021)	-1.5 ^{**} (0.004)
3	Operating Expenses	0.811 [*] (0.12346)	1.065	4.3 [*] (0.007)	-
4	Other Expenses	0.831 [*] (0.04932)	1.420	2.2 [*] (0.005)	-
	Total Expenditure	0.970 [*] (0.05312)	1.856	5.0 [*] (0.003)	0.2 ^{**} (0.001)

Notes: Same as Table -1

Table -3

Table Showing Estimated Growth Rate (In Real Terms) of Different Performance Parameters Comprising Total Income of the Public Sector As A Whole for The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{K} Rate (%)	Acceleration/ Deceleration (%)
1	Net Premium Earnings (All Segemnts)	0.942 [*] (0.01958)	1.334	1.3 [*] (0.001)	-
2	Income From Investments	0.665 [*] (0.14912)	1.922	2.7 ^{**} (0.008)	-0.5 ^{**} (0.002)
3	Other Income	0.939 [*] (0.05157)	1.818	0.6 [*] (0.003)	-
	Total Income	0.830 [*] (0.04848)	1.682	1.9 [*] (0.003)	-0.1 ^{**} (0.001)

Notes: Same as Table -1

Table -4

Table showing estimated growth rate (in real terms) of different performance parameters comprising Total Expenditure of the Public Sector as a whole for the period from 2001-02 to 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{K} Rate (%)	Acceleration/ Deceleration (%)
1	Net Incurred Claims (All Segments)	0.799 [*] (0.05209)	1.678	1.7 [*] (0.003)	-
2	Net Commission	0.863 [*] (0.37995)	1.638	13.9 [*] (0.021)	-1.6 [*] (0.004)
3	Operating Expenses	0.190 ^{11.6} (0.11316)	1.148	1.1 ^{11.6} (0.006)	-
4	Other Expenses	0.899 [*] (0.07163)	1.116	0.2 [*] (0.002)	-
	Total Expenditure	0.825 [*] (0.04981)	1.794	1.8 [*] (0.003)	-

Notes: Same as Table -1

Table -5

Table Showing Estimated Growth Rate (In Nominal Terms) of Different Performance Parameters Comprising Total Income of National Insurance Co. For The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{R} Rate (%)	Acceleration/Deceleration (%)
1	Net Premium Earnings (All Segments)	0.947 ⁺ (0.06714)	1.111	4.7 ⁺ (0.004)	-
2	Income From Investments	0.923 ⁺ (0.12618)	1.756	7.2 ⁺ (0.007)	-
3	Other Income	0.895 ⁺ (0.05274)	1.533	2.6 ⁺ (0.003)	-
	Total Income	0.961 ⁺ (0.06433)	1.314	5.4 ⁺ (0.004)	-

Notes: Same as Table -1

Table -6

Table Showing Estimated Growth Rate (In Nominal Terms) of Different Performance Parameters Comprising Total Expenditure of National Insurance Co. For The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{R} Rate (%)	Acceleration / Deceleration (%)
1	Net Incurred Claims (All Segments)	0.891 ⁺ (0.10609)	1.362	5.0 ⁺ (0.006)	-
2	Net Commission	0.665 ⁺ (1.35581)	1.774	27.4 ⁺ (0.075)	-3.7 ^{**} (0.015)
3	Operating Expenses	0.877 ⁺ (0.10052)	1.102	4.5 ⁺ (0.006)	-
4	Other Expenses	0.910 ⁺ (0.04174)	1.423	2.1 ⁺ (0.004)	-
	Total Expenditure	0.927 ⁺ (0.08903)	1.672	5.2 ⁺ (0.005)	-

Notes: Same as Table-1

Table -7

Table Showing Estimated Growth Rate (In Real Terms) of Different Performance Parameters Comprising Total Income Of National Insurance Co. For The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{R} Rate (%)	Acceleration/Deceleration (%)
1	Net Premium Earnings (All Segments)	0.637 ⁺ (0.06722)	1.063	1.5 ⁺ (0.004)	-
2	Income From Investments	0.800 ⁺ (0.12599)	1.889	4.1 ⁺ (0.007)	-0.3 ^{***} (0.001)
3	Other Income	0.889 ⁺ (0.04361)	1.710	-0.8 ⁺ (0.002)	-
	Total Income	0.800 ⁺ (0.06493)	1.512	2.1 ⁺ (0.004)	-0.1 ^{***} (0.001)

Notes: Same as Table -1

Table -8

Table Showing Estimated Growth Rate (In Real Terms) of Different Performance Parameters Comprising Total Expenditure Of National Insurance Co. For The Period From 2001-02 To 2010-11

SL.	Parameter	\bar{R}^2	DW ⁺	Growth \bar{R} Rate (%)	Acceleration/Deceleration (%)
1	Net Incurred Claims (All Segments)	0.485 ^{**} (0.10982)	1.472	1.9 ⁺ (0.006)	-
2	Net Commission	0.634 ^{**} (1.34846)	1.781	24.2 ^{**} (0.074)	-3.9 ^{**} (0.015)
3	Operating Expenses	0.360 ^{**} (0.09555)	1.111	1.3 ^{**} (0.005)	-
4	Other Expenses	0.901 ^{**} (0.05167)	1.813	-1.3 ^{**} (0.014)	-
	Total Expenditure	0.629 ⁺ (0.09316)	1.806	2.1 ⁺ (0.005)	-

Notes: Same as Table -1

Table -9

Statement Showing Various Components of Income & Expenditure As A Percent of Total Income and Total Expenditure of the Public Sector As A Whole During 2001-02 To 2010- 11

Year	Percentage of various components comprising Total Income			
	Net Premium Earned	Income from Investments		Other Income
		Interest, Dividend & Rent	P/L on Sale of Investments	
Mean	72.24	15.79	11.69	0.28
Median	72.20	15.51	12.69	0.31
S.D	4.00	2.01	5.42	0.12
Year	Percentage of various components comprising Total Expenditure			
	Net Incurred Claims	Net Commission	Expenses of Management	Other Expenses
Mean	70.11	4.03	24.96	0.90
Median	70.26	4.47	24.43	0.83
S.D	1.98	1.89	2.33	0.37

Source: Compiled from IRDA publications and annual reports of four public sector companies operating in India during 2001-02 to 2010-11.

Table -10

Statement showing various components of Income & Expenditure as a percent of Total Income and Total Expenditure of National Insurance during 2001-02 to 2010-11

Year	Percentage of various components comprising Total Income			
	Net Premium Earned	Income from Investments		Other Income
		Interest, Dividend & Rent	P/L on Sale of Investments	
Mean	75.64	13.38	10.64	0.34
Median	74.97	12.98	12.60	0.36
S.D	3.48	2.44	5.54	0.11
Year	Percentage of various components comprising Total Expenditure			
	Net Incurred Claims	Net Commission	Expenses of Management	Other Expenses
Mean	71.35	3.19	23.91	1.55
Median	70.99	3.50	24.04	1.92
S.D	1.89	1.66	2.01	0.89

Source: Compiled from IRDA publications and annual reports of National Insurance during 2001-02 to 2010-11.