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**ECONOMIC SCALE OF NON-LIFE INSURANCE COMPANIES IN INDIA**

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**ABSTRACT**

*The Indian non-life insurance segment registered significant growth during the review period (2009–2013), despite the global financial crisis in 2009. The increase was primarily due to growing awareness of compulsory motor third-party liability insurance, and rising property prices in major Indian cities such as Mumbai and Bangalore. This was encouraged by rising income levels that increased demand for motor and property insurance. These factors are expected to enable the segment to record a forecast-period (2009–2018) CAGR of 11.3%. The study mainly concentrated on measuring financial performance in terms of financial health of the public and private Non-Life Insurance Companies. It has taken eight (Four Public and Four Private) registered Non-Life insurers and examined data of nine years from 2006-07 to 2014-15. This model helps to predict the business performance and helps to take necessary step for this course of action. This financial health analysis the companies can improve and encounter their problem of business and financial performance.*

**KEYWORDS**

business performance, factors, financial performance, financial health, non-life insurance.

**INTRODUCTION**

Indian Insurance Industry is one of the booming Industries of the economy and is growing at the rate of 15-20 % per annum. Along with banking services, it contributes to about 7% to the country's GDP. Insurance is being a federal subject in India and which is governed by Insurance Act, 1938, the Life Insurance Corporation Act, 1956 and General Insurance Business (Nationalization) Act, 1972, Insurance Regulatory and Development Authority (IRDA) Act, 1999 and other related Acts. Indian Insurance Industry is flourishing with several national and international players competing and growing at rapid rates. The success comes usually from the easing of policy regulations, and India has become more familiar with different insurance products and the period from 2010 - 2015 is projected to be the 'Golden Age' for the Indian insurance industry. The Indian non-life insurance segment registered significant growth during the review period (2009–2013), despite the global financial crisis in 2009. The increase was primarily due to growing awareness of compulsory motor third-party liability insurance, and rising property prices in major Indian cities such as Mumbai and Bangalore. This was encouraged by rising income levels that increased demand for motor and property insurance. These factors are expected to enable the segment to record a forecast-period (2009–2018) CAGR of 11.3%. The public sector companies will definitely face an extremely competitive situation from the private sectors and the private sectors will in turn have to prove their competency to gain an edge over the public sectors and to grab a major piece of the market pie. Another major development in the future would be the number of private insurers in the space. This is expected to grow as various foreign companies have announced intentions to establish joint ventures. Given the low level of penetration in some segments, this trend towards foreign participation is likely to continue for some time. So, India will witness a major competition in the general insurance market and this definitely indicates a tough but exciting road ahead for the existing and upcoming players. This study aims to analysis the short-term and long-term financial strengths and the overall financial health of Non-Life Insurance Companies in India.

**IMPORTANCE OF THE STUDY**

Non-Life insurance is an important for every person who would like to live a risk-free life. Risk is associated with everything and so, it is important to secure all the things that we own and that security is provided by insurance. Non-life insurance covers insurance policies like burglary, theft, etc. Personal insurances like health and accident insurance are also covered up by general insurance. The present study focused on analyzing the various aspects to the financial performance of the Non-Life Insurance in India. This study will be of immense help to the society by enabling the policyholders and other shareholders of the Non-Life Insurance in India to take economic decisions. The companies in Non-Life Insurance in India will also be able to know their existing financial strength by this study so as to take the policy decision relating to finance in future.

**STATEMENT OF PROBLEM**

The financial performance is an important factor which indicates the growth of any industry. The financial performance of non-life insurance is influenced by some factors like cost, revenue, capital and other related variables. If the Z score analysis is made on all the aspects related to the non-life insurance companies gives a clear cut picture about the financial performance, it can be used for some policy decision for its future. One of the major problems affecting the industry, like in all developing economies is the shortage of trained insurance professionals and technicians at all levels. So companies that are able to recruit and grow talent that continue to provide innovative insurance solutions for the underserved Indian market will be the ones that will rise and shine in the general insurance industry.

**METHODOLOGY****COLLECTION OF DATA**

The study is based on secondary data, collected from annual reports of the public and private sector general insurance companies in India. Data were also collected from the Insurance Hand Book published by IRDA and various journals, magazines and websites.

**SAMPLE COMPANIES**

The study has covered non-life insurance business establishments from both from public and private sector Non-Life Insurance Companies in India.

## 1) Public sector companies

- United India Insurance (UIICL),
- National Insurance Company (NICTL),
- Oriental Insurance (OICL) and
- New India Assurance Company (NIACL).



2) Private sector companies

- Bajaj Allianz General Insurance Company Ltd. (BAGIL)
- ICICI Lombard General Insurance Company Ltd. (ICICIL)
- Tata AIG General Insurance Company Ltd. and
- HDFC Ergo General Insurance Company Ltd.

**PERIOD OF STUDY**

The present study analyses data covering a period of 9 years from 2006-07 to 2014-15.

**ANALYSIS**

The analytical method is implemented for this study. The secondary data have been analyzed and presented various statistical techniques, such as mean, standard deviation and Z score analysis have been used for analyzing and interpreting the data.

**1. (A) SHORT-TERM FINANCIAL STRENGTH**

The Short-Term financial strength refers to the liquidity position of the business firm. Liquidity refers to the firm’s ability to meet its short-term obligations. “Liquidity is the ease with which assets may be converted into cash without loss”.

The quick ratio is the second widely used device for judging the short-term repaying ability of a firm in the near future. This ratio shows the ability of a business to meet its immediate financial commitments.

**(B) LONG-TERM FINANCIAL STRENGTH**

The long-term financial strength of the firm is measured by Debt Equity Ratio, Fixed Assets to Net Worth Ratio and Fixed Assets to Total Debt Ratio.

The debt-equity ratio shows the relative equity and long-term debt in the case of a firm which includes loans on mortgage and all the term loans and debentures. The amount of equity includes net worth. The ratio of fixed assets to net worth shows the proportion of fixed assets financed by the owners in a firm. The fixed assets to total debt ratio is also an important ratio for judging the long-term financial strength of a firm because at the time of liquidation or in long-term lending, one sees only the fixed assets of that firm.

**FINANCIAL STRENGTH OF NATIONAL INSURANCE COMPANY LIMITED**

The technical solvency in the near future and financing fixed assets requirements of the National Insurance Company was exhibited with the help of short-term and long-term financial strength. The ratios, namely, current ratio and quick ratio were calculated to measure the short-term financial strength, whereas the debt-equity ratio, fixed assets to net worth ratio and fixed assets to total debt ratio were analyzed to measure the long-term financial strength. The resulted ratios were shown in the table 1.

**TABLE 1: FINANCIAL STRENGTH OF NATIONAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.539794	0.536419	0.043428	0.041853	0.009442
2007-08	0.507644	0.504059	0.043506	0.040875	0.009174
2008-09	0.53229	0.528191	0.05204	0.039811	0.00739
2009-10	0.548222	0.507138	0.049064	0.069429	0.01296
2010-11	0.419062	0.414612	0.055934	0.068124	0.011636
2011-12	0.319598	0.315068	0.052112	0.050007	0.009122
2012-13	0.410698	0.407146	0.049	0.057684	0.010001
2013-14	0.431222	0.427792	0.047051	0.058129	0.011276
2014-15	0.442918	0.440125	0.031253	0.05182	0.011356
Mean	0.461272	0.453394	0.047043	0.053081	0.010262
S.D (σ)	0.076298	0.072069	0.007181	0.011194	0.001691

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.548 during the year 2009-10 and the lower value of 0.319 during the year 2011-12 and the quick ratio was lower value is 0.315 during the year 2011-12 and the higher value of 0.536 during the year 2006-07. The averages of the above ratios are 0.461 and 0.453 times respectively and S.D of the above ratios is 0.08 and 0.07 respectively. The long-term financial strength of the debt equity ratio was 0.0559 during the year 2011-12 and lower value of 0.0312 during the year 2014-15. Fixed asset to net worth was 0.0694 increased values and decreased value is 0.0398 and finally the ratio of fixed asset to total debt was 0.007 and increased value of 0.012. The averages of the above ratios are 0.04, 0.05 and 0.001 times respectively and S.D of the above ratios is 0.07, 0.01 and 0.001 respectively.

**FINANCIAL STRENGTH OF NEW INDIA ASSURANCE COMPANY LIMITED**

The New India assurance Company was analyzed with the help of short-term and long-term financial strength. The ratios, namely, current ratio and quick ratio were calculated to measure the short-term financial strength, whereas the debt-equity ratio, fixed assets to net worth ratio and fixed assets to total debt ratio were analyzed to measure the long-term financial strength. The calculated ratios were shown in the table 2.

**TABLE 2: FINANCIAL STRENGTH OF NEW INDIA ASSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.711163	0.708864	0.020707	0.022034	0.012569
2007-08	0.841025	0.838436	0.020368	0.016528	0.010388
2008-09	0.972876	0.969189	0.021422	0.021602	0.012882
2009-10	1.035128	1.031749	0.022832	0.021823	0.011701
2010-11	0.922005	0.91955	0.028434	0.022053	0.009776
2011-12	0.983536	0.983078	0.028893	0.020012	0.00804
2012-13	0.93236	0.932051	0.028587	0.017936	0.007166
2013-14	0.950617	0.949432	0.029036	0.018345	0.006899
2014-15	0.823895	0.822012	2.983246	0.018926	0.004006
Mean	0.908067	0.90604	0.353725	0.019918	0.00927
S.D (σ)	0.099364	0.099358	0.986078	0.002073	0.002971

Source: Computed

The short-term financial strength of the current ratio was higher value of 1.035 during the year 2009-10 and the lower value of 0.711 during the year 2006-07 and the quick ratio was lower value of 0.7088 during the year 2006-07 and the higher value of 1.031 during the year 2007-08. The averages of the above ratios are 0.908 and 0.906 times respectively and S.D of the above ratios is 0.09 and 0.09 respectively. The long-term financial strength of the debt equity ratio was 2.98 during the year 2014-15 and lower value of 0.0203 during the year 2007-08. Fixed asset to net worth was 0.02205 in increased value and decreased value was 0.0165 and finally the ratio of fixed asset to total debt was 0.011 and decreased value is 0.004. The averages of the above ratios are 0.354, 0.019 and 0.009 times respectively and S.D of the above ratios is 0.98, 0.002 and 0.003 respectively.

**FINANCIAL STRENGTH OF ORIENTAL INSURANCE COMPANY LIMITED**

The Oriental Insurance Company was analyzed with the help of short-term and long-term financial strength. The calculated ratios were shown in the table 3

**TABLE 3: FINANCIAL STRENGTH OF ORIENTAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.624076	0.623881	0.033398	0.036067	0.011858
2007-08	0.55507	0.554771	0.035335	0.046307	0.014155
2008-09	0.668299	0.668074	0.039135	0.041542	0.01083
2009-10	0.744734	0.744482	0.04286	0.044812	0.010644
2010-11	0.57456	0.574467	0.046137	0.039123	0.008376
2011-12	0.572122	0.571983	0.048159	0.044871	0.009537
2012-13	0.541222	0.541146	0.045755	0.035941	0.008019
2013-14	0.589548	0.589494	0.044528	0.030218	0.007156
2014-15	0.598936	0.598448	0.043813	0.030549	0.007098
Mean	0.607618	0.607416	0.042125	0.038826	0.009742
S.D (σ)	0.063912	0.063878	0.005075	0.006066	0.002359

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.744 during the year 2009-10 and the lower value of 0.541 during the year 2012-13 and the quick ratio was lower value is 0.541 during the year 2012-13 and the higher value of 0.744 during the year 2009-10. The averages of the above ratios are 0.608 and 0.607 times respectively and S.D of the above ratios is 0.06 and 0.06 respectively. The long-term financial strength of the debt equity ratio was 0.048 during the year 2011-12 and lower value of 0.033 during the year 2006-07. Fixed asset to net worth was 0.0463 in increased value and decreased value is 0.0302 and finally the ratio of fixed asset to total debt was 0.014 and decreased value of 0.0070. The averages of the above ratios are 0.042, 0.038 and 0.009 times respectively and S.D of the above ratios is 0.005, 0.006 and 0.002 respectively.

**FINANCIAL STRENGTH OF UNITED INDIA INSURANCE COMPANY LIMITED**

The Financial strength of United India Insurance Company was analyzed with the help of short-term and long-term financial strength. The calculated ratios were shown in the table 4.

**TABLE 4: FINANCIAL STRENGTH OF UNITED INDIA INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.421473	0.420536	2.822395	3.563041	0.015053
2007-08	0.44741	0.446528	2.68257	2.53738	0.011673
2008-09	0.518476	0.517588	2.587919	3.43573	0.016415
2009-10	0.596836	0.595795	2.46912	2.61168	0.013042
2010-11	0.433948	0.433048	2.720345	2.035622	0.008831
2011-12	0.458451	0.457724	3.202128	2.277734	0.008316
2012-13	0.3918	0.391121	3.380902	2.245318	0.007531
2013-14	0.389269	0.388769	3.355013	2.136235	0.007092
2014-15	0.353884	0.353423	3.454211	2.512846	0.008077
Mean	0.445727	0.444948	2.963845	2.595065	0.01067
S.D (σ)	0.073781	0.073625	0.38221	0.547789	0.003485

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.596 during the year 2009-10 and the lower value of 0.353 during the year 2014-15 and the quick ratio was lower value in 0.353 during the year 2014-15 and the higher value of 0.595 during the year 2009-10. The averages of the above ratios are 0.445 and 0.444 times respectively and S.D of the above ratios is 0.07 and 0.07 respectively. The long-term financial strength of the debt equity ratio was 3.454 during the year 2014-15 and lower value of 2.46 during the year 2009-10. Fixed asset to net worth was 3.56 in increased value and decreased value is 2.03 and finally the ratio of fixed asset to total debt was 0.0070 and increased value of 0.016. The averages of the above ratios are 2.96, 2.59 and 0.011 times respectively and S.D of the above ratios is 0.38, 0.54 and 0.003 respectively.

**FINANCIAL STRENGTH OF BAJAJ ALLIANZ GENERAL INSURANCE COMPANY LIMITED**

The Bajaj Allianz General Insurance Company was analyzed with the help of short-term and long-term financial strength. The ratios, namely, current ratio and quick ratio were calculated to measure the short-term financial strength, whereas the debt-equity ratio, fixed assets to net worth ratio and fixed assets to total debt ratio were analyzed to measure the long-term financial strength. The calculated ratios were shown in the table 5

**TABLE 5: FINANCIAL STRENGTH OF BAJAJ ALLIANZ GENERAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.48151	0.478739	0.980141	0.116102	0.037201
2007-08	0.543135	0.540727	1.004384	0.173689	0.050474
2008-09	0.572276	0.570441	1.000042	0.191149	0.051529
2009-10	0.558947	0.556999	1.000012	0.193438	0.052169
2010-11	0.406529	0.404278	1.000006	0.186779	0.043222
2011-12	0.435847	0.434459	0.999994	0.217041	0.047075
2012-13	0.431391	0.430446	0.099976	0.226346	0.053793
2013-14	0.356702	0.354381	0.099982	0.173468	0.047255
2014-15	0.353997	0.352496	0.099978	0.126954	0.042319
Mean	0.460037	0.458107	0.698279	0.178329	0.047226
S.D (σ)	0.08362	0.083505	0.448778	0.036785	0.005446

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.572 during the year 2009-10 and the lower value of 0.353 during the year 2014-15 and the quick ratio was lower value in 0.352 during the year 2014-15 and the higher value of 0.5704 during the year 2008-09. The averages of the above ratios are 0.46 and 0.083 times respectively and S.D of the above ratios is 0.08 and 0.08 respectively. The long-term financial strength of the debt equity ratio was 1.004 during the year 2008-09 and lower value of 0.099 during the year 2014-15. Fixed asset to net worth was 0.226 in increased value and decreased value is 0.116 and finally the ratio of fixed asset to total debt was 0.053 and decreased value of 0.037. The averages of the above ratios are 0.698, 0.178 and 0.047 times respectively and S.D of the above ratios is 0.44, 0.036 and 0.005 respectively.

**FINANCIAL STRENGTH OF HDFC ERGO GENERAL INSURANCE COMPANY LIMITED**

The Financial strength of HDFC Ergo General Insurance Company was analyzed with the help of short-term and long-term financial strength. The calculated ratios were shown in the table 6.

**TABLE 6: FINANCIAL STRENGTH OF HDFC ERGO GENERAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.638471	0.628483	0.756228	0.11676	0.100298
2007-08	0.562589	0.556053	0.686014	0.076121	0.062952
2008-09	0.686028	0.679075	0.635776	0.084836	0.057828
2009-10	0.693512	0.651954	0.597235	0.059479	0.038037
2010-11	0.343941	0.319512	0.71767	0.141131	0.075392
2011-12	0.34535	0.335558	0.686102	0.128658	0.053923
2012-13	0.284482	0.276646	0.889819	0.138035	0.043651
2013-14	0.34555	0.335068	1	0.182892	0.052343
2014-15	0.269058	0.265632	1	0.149796	0.042707
Mean	0.46322	0.449776	0.774316	0.119745	0.05857
S.D (σ)	0.178493	0.174549	0.152017	0.039567	0.019365

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.6935 during the year 2009-10 and the lower value of 0.269 during the year 2014-15 and the quick ratio of lower value is 0.276 during the year 2012-13 and the higher value of 0.679 during the year 2008-09. The averages of the above ratios are 0.463 and 0.449 times respectively and S.D of the above ratios is 0.178 and 0.17 respectively. The long-term financial strength of the debt equity ratio was 1 during the year 2014-15 and 2013-14 and lower value of 0.597 during the year 2009-10. Fixed asset to net worth was 0.182 increased value and decreased value in 0.059 and finally the ratio of fixed asset to total debt was 0.038 and increased value of 0.1002. The averages of the above ratios are 0.774, 0.119 and 0.05 times respectively and S.D of the above ratios is 0.152, 0.03 and 0.019 respectively.

**FINANCIAL STRENGTH OF ICICI LOMBARD GENERAL INSURANCE COMPANY LIMITED**

The short-term and long-term financial strength of ICICI Lombard were analyzed with the help of five important ratios, namely, current ratio, quick ratio, debt-equity ratio, fixed assets to net worth ratio and fixed assets to total debt ratio from the year 2006-07 to 2014-15. The resulted ratios were shown in the table 7.

**TABLE 7: FINANCIAL STRENGTH OF ICICI LOMBARD GENERAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.91765	0.908296	2.015662	0.092219	0.02789
2007-08	0.728767	0.724587	2.359722	0.116462	0.028327
2008-09	0.799382	0.795389	2.238021	0.097818	0.024861
2009-10	0.75751	0.752925	2.787445	0.085671	0.018351
2010-11	0.646069	0.644344	3.726798	0.253541	0.038636
2011-12	0.579944	0.578604	5.171318	0.274061	0.026552
2012-13	0.505484	0.504396	4.861237	0.226777	0.024149
2013-14	0.435967	0.434942	4.106665	0.163578	0.021114
2014-15	0.371216	0.36961	3.494475	0.138015	0.022241
Mean	0.6379989	0.6347881	3.417927	0.1609047	0.025791
S.D (σ)	0.1801932	0.1778789	1.151574	0.072963	0.005807

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.917 during the year 2006-07 and the lower value of 0.371 during the year 2014-15 and the quick ratio was lower value in 0.369 during the year 2014-15 and the higher value of 0.908 during the year 2006-07. The averages of the above ratios are 0.180 and 0.177 times respectively and S.D of the above ratios is 0.180 and 0.177 respectively. The long-term financial strength of the debt equity ratio was higher value of 5.17 during the year 2011-12 and lower value of 2.015 during the year 2006-07. Fixed asset to net worth was 0.274 in increased value and decreased value is 0.092 and finally the ratio of fixed asset to total debt was 0.038 and decreased value of 0.018. The averages of the above ratios are 3.41, 0.16 and 0.025 times respectively and S.D of the above ratios is 1.15, 0.07 and 0.005 respectively.

**FINANCIAL STRENGTH OF TATA AIG GENERAL INSURANCE COMPANY LIMITED**

The short-term and long-term financial strength of TATA AIG were analyzed with the help of five important ratios, namely, current ratio, quick ratio, debt-equity ratio, fixed assets to net worth ratio and fixed assets to total debt ratio from the year 2006-07 to 2014-15. The resulted ratios were shown in the table 8.

**TABLE 8: FINANCIAL STRENGTH OF TATA AIG GENERAL INSURANCE COMPANY LIMITED**

Year	Short-term Financial Strength		Long-term Financial Strength		
	Current Ratio	Quick Ratio	Debt-Equity Ratio	Fixed Asset to Net worth	Fixed asset to Total Debt
2006-07	0.67548	0.672855	0.062569	0.12111	0.061629
2007-08	0.535991	0.526421	0.039907	0.10354	0.044474
2008-09	0.782838	0.774108	0.024363	0.081203	0.036587
2009-10	0.620555	0.615372	0.086651	0.084779	0.031761
2010-11	0.335963	0.329457	0.120647	0.078116	0.024704
2011-12	0.280485	0.276136	0.16513	0.064531	0.016435
2012-13	0.287886	0.285651	0.141336	0.148131	0.039043
2013-14	0.276089	0.273586	0.226974	0.126001	0.03457
2014-15	0.330846	0.328367	0.149207	0.115991	0.03345
Mean	0.4584592	0.4535503	0.112976	0.1026004	0.03585
S.D (σ)	0.1968265	0.1954071	0.065495	0.0273121	0.012624

Source: Computed

The short-term financial strength of the current ratio was higher value in 0.782 during the year 2008-09 and the lower value of 0.276 during the year 2013-14 and the quick ratio was lower value in 0.273 during the year 2013-14 and the higher value of 0.774 during the year 2008-09. The averages of the above ratios are 0.458 and 0.453 times respectively and S.D of the above ratios is 0.19 and 0.19 respectively. The long-term financial strength of the debt equity ratio was 0.226 during the year 2013-14 and lower value of 0.024 during the year 2008-09. Fixed asset to net worth was 0.148 increased value and decreased value in 0.064 and finally the ratio of fixed asset to total debt was 0.016 and increased value of 0.0616. The averages of the above ratios are 0.112, 0.102 and 0.035 times respectively and S.D of the above ratios is 0.06, 0.02 and 0.012 respectively.

**2. Z SCORE ANALYSIS**

The financial health of the company can be determined through multiple discriminates analysis propounded by Edward Altman who has indicated the financial health of an organization, through Z scoring which was given below

**a) Z score model of Public Companies**

$$Z = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 0.99x_5$$

**b) Z score model of Private Companies**

$$Z = 0.717x_1 + 0.847x_2 + 3.107x_3 + 0.420x_4 + 0.998x_5$$

Whereas,

X<sub>1</sub> – Working Capital /Total Assets

X<sub>2</sub> – Reserve and Surplus / Total Assets

X<sub>3</sub> – Earning before Interest and Tax (EBIT) / Total Assets

X<sub>4</sub> – Equity Capital / Debt

X<sub>5</sub> – Sales / Total Assets

Z – Index

The main purpose of calculating Z score is to caution the company of its financial problems that needs serious attention and to provide a guide for action to avert the trouble ahead. The companies can be classified into three different Zones on the basis of their Z score values. These are as follow.

Z > 2.99 – “Very Healthy” or “Safe” Zone

1.8 < Z < 2.99 – “Healthy” Zone or “Grey” Zone

Z < 1.80 – “Bankruptcy” Zone or “Distress” Zone

**Z Scoring in National Insurance Company Limited**

The Z scoring of the five key ratios of the National Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-9

**TABLE 9: Z SCORING IN NATIONAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	1.007284	0.733293	0.546071	0.009442	0.938396	3.234486
2007-08	1.145258	0.772976	0.204135	0.008639	0.967167	3.098175
2008-09	0.942607	0.549515	0.132089	0.007902	0.822519	2.454632
2009-10	0.965483	0.599642	0.256011	0.007075	0.833137	2.661348
2010-11	0.243446	1.122618	1.280753	0.006182	1.915257	4.568256
2011-12	0.294767	1.32256	0.5481	0.005519	2.449219	4.620165
2012-13	0.30023	1.410354	1.180284	0.004132	2.277198	5.172198
2013-14	0.2799	1.577727	1.229461	0.003697	2.343067	5.433852
2014-15	0.268039	1.751603	1.303282	0.003379	2.204111	5.530414

Source: Computed

The below diagram is helps to interpret and explain the Z score value of the National Insurance Company Limited (NICL) during the year from 2006-07 to 2014-15. This analysis helps to understand the company performance through Zones of discrimination after this analysis the national insurance company performance was “very healthy” Zone.

**Z SCORING IN NEW INDIA ASSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios of the New India Assurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-10.

**TABLE 10: Z SCORING IN NEW INDIA ASSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.968433	2.968973	0.194063	0.01137	1.471509	5.614348
2007-08	4.67414	2.968283	0.157175	0.010816	1.180083	8.990497
2008-09	1.050676	3.70235	0.036419	0.009773	1.539415	6.338633
2009-10	0.109408	2.748218	0.003219	0.00866	1.208898	4.078403
2010-11	2.686391	2.442162	0.034262	0.00748	1.507849	6.678144
2011-12	0.636494	2.500743	0.012222	0.006236	1.693404	4.849099
2012-13	2.599871	2.55129	0.073068	0.005625	1.286678	6.516532
2013-14	2.012553	2.507183	0.080578	0.004655	1.253426	5.858395
2014-15	0.67131	2.37032	0.94974	0.02385	1.27122	5.28644

Source: Computed

The below Figure explain the performance of Z score value of New India Assurance (NIACL) during the year from 2006-07 to 2014-15. This financial health analysis gives the “Safe” Zone of different years; it helps to elaborate their business in future.

**Z SCORING IN ORIENTAL INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios namely, X1, X2, X3, X4, X5 and finally calculate the Z score Index of the Oriental Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-11.

**TABLE 11: Z SCORING IN ORIENTAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.581223	1.936078	0.149206	0.009738	1.79186	4.468105
2007-08	0.539831	1.662809	0.901061	0.009051	1.480751	4.593503
2008-09	0.806923	1.948443	2.190502	0.007925	1.909308	6.863101
2009-10	0.610151	1.414559	1.60817	0.007387	1.632635	5.272902
2010-11	0.619356	1.36042	0.3070633	0.006475	1.680745	3.974059
2011-12	0.64955	1.457062	0.60534	0.005854	1.931652	4.649458
2012-13	0.665948	1.559883	1.198683	0.00776	1.846847	5.279121
2013-14	0.655878	1.623065	0.911996	0.009563	1.898729	5.099231
2014-15	0.648609	1.588203	0.775075	0.006677	1.702771	4.721335

Source: Computed

The below diagram is helps to interpret and explain the Z score value of the Oriental Insurance Company Limited during the year from 2006-07 to 2014-15. This analysis helps to understand the company performance through Zones of discrimination after this analysis the Oriental insurance company performance was “very healthy” Zone. It helps to predict the business performance and this financial health analysis the companies can improve and elaborate their business and financial performance.

**Z SCORING IN UNITED INDIA INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios of the United India Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table 12.

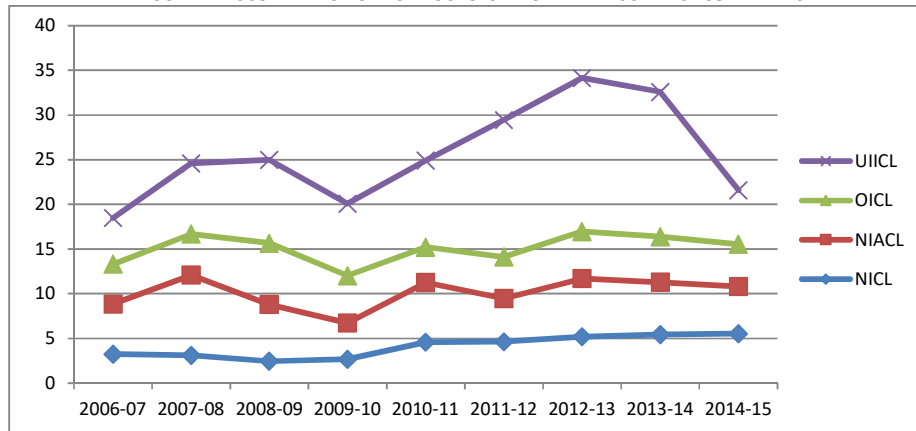
**TABLE 12: Z SCORING IN UNITED INDIA INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	1.582719	1.747508	0.821237	0.013767	0.988833	5.154065
2007-08	2.191039	2.842077	1.426938	0.012756	1.435195	7.908006
2008-09	2.306414	3.741271	1.285828	0.011918	1.977764	9.323194
2009-10	1.51958	3.25762	1.578624	0.010831	1.693129	8.059784
2010-11	2.468391	3.072772	2.311497	0.009196	1.828792	9.690647
2011-12	2.7045	2.96354	7.454667	0.007235	2.205218	15.33516
2012-13	3.312804	2.919217	8.741417	0.006105	2.196999	17.17654
2013-14	3.182627	2.619232	8.136848	0.005573	2.2536	16.19788
2014-15	3.168739	2.539892	0.036673	0.005176	0.302956	6.053436

Source: Computed

The below Figure-4 explain the performance of Z score value of United India Insurance during the year from 2006-07 to 2014-15. This financial health analysis gives the "Safe" Zone of different years; it helps to elaborate their business in future.

**FIGURE 1: Z SCORE VALUE OF PUBLIC SECTOR NON-LIFE INSURANCE COMPANIES**



**Z SCORING IN BAJAJ ALLIANZ GENERAL INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios of the Bajaj Allianz General Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-13.

**TABLE 13: Z SCORING IN BAJAJ ALLIANZ GENERAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.153802	0.146463	0.214383	0.036011	0.53949	1.090149
2007-08	0.135408	0.154982	0.204359	0.023406	0.606329	1.124484
2008-09	0.140364	0.015037	0.146932	0.018559	0.53915	0.860042
2009-10	0.153057	0.155012	0.149677	0.015749	0.458971	0.932466
2010-11	0.221097	0.138357	0.043261	0.012821	0.451318	0.866854
2011-12	0.218712	0.013384	0.112051	0.010473	0.428566	0.783186
2012-13	0.216751	0.148362	0.200349	0.008765	0.4692	1.043427
2013-14	0.238769	0.016933	0.234605	0.007578	0.343537	0.841422
2014-15	0.230358	0.201264	0.271201	0.006934	0.373091	1.082848

Source: Computed

The below diagram is helps to interpret and explain the Z score value of the Bajaj Allianz General Insurance Company Limited (BAGICL) during the year from 2006-07 to 2014-15. This analysis helps to understand the company performance through Zones of discrimination after this analysis the Bajaj Allianz General insurance company performance was "Bankruptcy" Zone. It helps to predict the business performance and helps to take necessary action for this course of action. This financial health analysis the companies can improve and encounter their problem of business and financial performance.

**Z SCORING IN HDFC ERGO GENERAL INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios namely, X1, X2, X3, X4, X5 and finally calculate the Z score Index of the HDFC Ergo General Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-14.

**TABLE 14: Z SCORING IN HDFC ERGO GENERAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.211863	-	0.082288	0.360783	1.321232	1.976166
2007-08	0.291827	-	0.506373	0.347344	1.396994	2.542538
2008-09	0.340388	-	0.616107	0.286292	1.201253	2.44404
2009-10	0.318557	-	1.184127	0.268588	1.537808	3.30908
2010-11	0.717075	0.208037	0.267297	0.184814	1.422662	2.799885
2011-12	1.005618	0.401415	0.23195	0.118792	1.762508	3.520283
2012-13	1.151194	0.327473	0.788349	0.087124	1.602223	3.956363
2013-14	1.043417	0.338996	0.789748	0.072094	1.478671	3.722926
2014-15	1.195108	0.3906	0.437756	0.064523	1.4441	3.532087

Source: Computed

The below Figure explain the performance of Z score value of HDFC Ergo General Insurance during the year from 2006-07 to 2014-15. This financial health analysis gives the "Safe" Zone of different years except the 2006-07 because 1.976 is the "healthy" Zone. It helps to elaborate their business in future.

**Z SCORING IN ICICI LOMBARD GENERAL INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios of the ICICI Lombard General Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table-15.

**TABLE 15: Z SCORING IN ICICI LOMBARD GENERAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.024925	0.131033	0.08427	0.045233	0.346423	0.631884
2007-08	0.088991	0.155953	0.106638	0.035829	0.325883	0.713294
2008-09	0.073399	0.185257	0.155514	0.026851	0.242308	0.683329
2009-10	0.094878	0.159723	0.073062	0.021704	0.240789	0.590156
2010-11	0.149311	0.115929	0.031091	0.016914	0.246811	0.560056
2011-12	0.20061	0.114285	0.116666	0.012184	0.272326	0.716071
2012-13	0.231406	0.101454	0.073738	0.011069	0.242564	0.660231
2013-14	0.260586	0.121066	0.119335	0.010133	0.255401	0.766521
2014-15	0.263151	0.14741	0.157148	0.010706	0.253798	0.832213

Source: Computed

The below diagram is helps to interpret and explain the Z score value of the ICICI Lombard ICICI Lombard General Insurance Company Limited during the year from 2006-07 to 2014-15. This analysis helps to understand the company performance through Zones of discrimination after this analysis the General insurance company performance was "Bankruptcy" Zone. It helps to predict the business performance and helps to take necessary step for this course of action. This financial health analysis the companies can improve and encounter their problem of business and financial performance.

**Z SCORING IN TATA AIG GENERAL INSURANCE COMPANY LIMITED**

The Z scoring of the five key ratios of the TATA AIG General Insurance Company Limited from the year 2006-07 to 2014-15 were calculated and shown in the table 16.

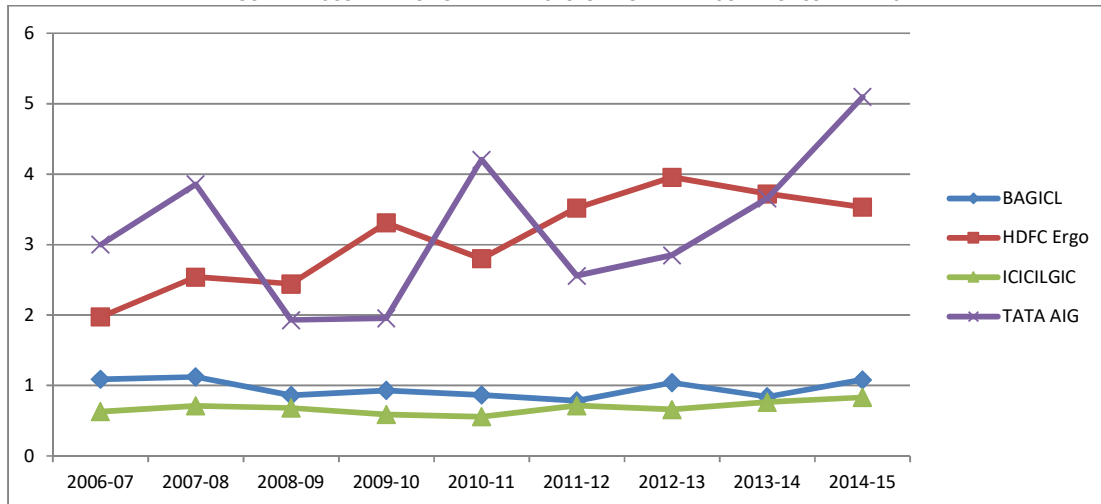
**TABLE 16: Z SCORING IN TATA AIG GENERAL INSURANCE COMPANY LIMITED**

Years	X1	X2	X3	X4	X5	Z Score
2006-07	0.29242	0.081488	0.525413	0.197241	1.905575	3.002137
2007-08	0.529647	0.161455	0.455892	0.156135	2.552617	3.855746
2008-09	0.183691	0.090828	0.080675	0.167358	1.408699	1.931251
2009-10	0.407397	0.093824	0.088318	0.136462	1.23073	1.956731
2010-11	1.273579	0.111735	0.208775	0.119313	2.492118	4.20552
2011-12	1.682785	0.030759	0.398877	0.104022	0.342548	2.558991
2012-13	1.473922	0.183107	0.850236	0.089719	0.252577	2.849561
2013-14	1.579719	0.327144	1.295554	0.080122	0.375479	3.658018
2014-15	1.251028	0.396157	0.925995	0.073272	2.451508	5.09796

Source: Computed

The below Figure-8 explain the performance of Z score value of TATA AIG General Insurance during the year from 2006-07 to 2014-15. This financial health analysis gives the "Safe" Zone of different years; it helps to elaborate their business in future.

**FIGURE 2: Z SCORE VALUE OF PRIVATE SECTOR NON-LIFE INSURANCE COMPANIES**



**CONCLUSION**

This paper study the financial strength of the Non-Life Insurance Companies in India was analyzed by comparing the vital financial ratios. The objective of this analysis was to identify the short-term and long-term financial strength of Non-Life companies under the study. Further, the financial health of Non-Life Insurance companies in India was studied, using Altman's Z score model. This model helps to know the different Zones of discrimination of the Public and Private sector on-Life Insurance Companies in India. All public companies perform the "Very Healthy" Zone and four Private Companies (out of 29 Companies) perform the "Bankruptcy" Zone except the HDFC Ergo General Insurance Companies and TATA AIG General Insurance companies. This model helps to predict the business performance and helps to take necessary step for this course of action. This financial health analysis the companies can improve and encounter their problem of business and financial performance.

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**ANNUAL REPORT**

6. Annual Report of Bajaj Allianz General Insurance Company Limited (2006-07 to 2014-15)
7. Annual Report of HDFC ERGO General Insurance Company Limited (2006-07 to 2014-15)
8. Annual Report of ICICI Lombard General Insurance Company Limited (2006-07 to 2014-15)
9. Annual Report of National Insurance Company Limited (2006-2007 to 2014-2015)
10. Annual Report of New India Assurance Company Limited (2006-2007 to 2014-2015)
11. Annual Report of Oriental Insurance Company Limited (2006-2007 to 2014-2015)
12. Annual Report of TATA AIG General Insurance Company Limited (2006-07 to 2014-15)
13. Annual Report of United Insurance Company Limited (2006-2007 to 2014-2015)

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