

Indian Life Insurance Market and Corporate Performances: A Study of Selected Firms

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Abstract

In the pre-reform era, Life Insurance Corporation of India (LICI) dominated the Indian life insurance market with a market share close to 100 percent. But the situation drastically changed since the enactment of the IRDA Act in 1999. At the end of the FY 2012-13, the market share of LICI stood at around 73 percent with the number of players having risen to 24 in the country's life insurance sector. One of the reasons for such a decline in the market share of LICI during the post-reform period could be attributed to the increasing competition prevailing in the country's life insurance sector. At the same time, the liberalisation of the life insurance sector for private participation has eventually raised issues about ensuring sound financial performance and solvency of the life insurance companies besides protection of the interest of policyholders.

The present study is an attempt to evaluate and compare the financial performances, solvency, and the market concentration of the four leading life insurers in India namely the Life Insurance Corporation of India (LICI), ICICI Prudential Life Insurance Company Limited (ICICI PruLife), HDFC Standard Life Insurance Company Limited (HDFC Standard), and SBI Life Insurance Company Limited (SBI Life), over a span of five successive FYs 2008-09 to 2012-13. In this regard, the CAMELS model has been used to evaluate the performances of the selected life insurers, based on the Financial Soundness Indicators (FSIs) as published by IMF. In addition to this, the

Solvency and the Market Concentration Analyses were also presented for the selected life insurers for the given period. The present study revealed the pre-existing dominance of LICI even after 15 years since the privatisation of the country's life insurance sector.

Keyword: Life Insurance, Financial Performance, CAMELS, HHI, k-Concentration Ratio

Introduction

Liberalisation of the insurance market, as part of the overall process of globalisation in India, enabled the foreign insurance companies to put their foothold into India. The decade of 2000s saw an upswing in the growth of life insurance industry from industrialised countries to the emerging markets such as India. From a single government insurer till the mid-90s, the Indian insurance industry also underwent a drastic change that witnessed the market share of private insurance players to soar up to around 27% at the end of FY 2012-13. With the Government of India having approved the FDI limit during the FY 2005-06, from 26% to 49% in the country's insurance sector, it would enable the foreign companies to infuse fresh capital in the Indian insurance sector, thereby fuelling further growth. At the same time, liberalisation of the life insurance market for private participation, eventually raised issues about ensuring sound financial performance and solvency of the life insurance companies and protection of the interest of policyholders. Moreover, the rise in the number of players to 24 in the country's life

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insurance sector at the end of FY 2012-13 has made the market more competitive.

The present research paper has been structured as follows: second section provides an overview of the Indian life insurance industry. Third section summarizes the literature review that contributes to the present research work. Fourth section discusses the research objectives, sample selection and methodologies used to extract and analyse the data. Fifth section highlighted the core set of 10 financial ratios (Financial Soundness Indicators, FSIs) that were used in the application of the CAMELS model, besides the popular Market Concentration methods to evaluate and compare the performances of the individual life insurers over the FYs 2008-09 to 2012-13. In addition, an attempt has also been made to ascertain the extent of differences prevailing in the performances of LICI viz-a-viz the selected private life insurers in terms of total life insurance premium income earned over the FYs 2008-09 to 2012-13 using Analysis of Variance (ANOVA) and Lease Square Differences (LSD) tests. Sixth section reported the analysis and findings of the results for the present research work. Seventh section provided the concluding observations, limitations and the scope of opportunities for future research based on the present study. A bibliography of the references and materials used in the present research work has been provided at the end for future references.

An Overview of the Indian Life Insurance Industry

Life insurance activity in its modern form started in India in 1818 to provide insurance for English widows through a British company called the Oriental Life Insurance Company at Calcutta. This company was only insuring the lives of Europeans living in India. In 1871, the first Indian company with the title 'Bombay Mutual Life Assurance Society' started its business in India at normal rates of premium i.e. at the rate applicable to the English people. The first attempt at regulation of the insurance business in India was through the passing of the Indian Life Assurance Companies Act in 1912. To protect the interests of insured public, the Insurance Act was subsequently reviewed and a new comprehensive legislation was enacted called the 'Insurance Act of 1938' that provided strict state control covering both life and non-life insurance businesses in the country. Finally in 1956, the life insurance business

was nationalised in India by an Act of Parliament with the introduction of the Life Insurance Corporation (LIC) Act on 01st July, 1956 through the takeover of 245 insurers (170 Companies and 75 Provident Fund societies). This saw the emergence of the country's sole public-sector life insurance company namely the 'Life Insurance Corporation of India' (LICI). The LICI was formed with an initial capital contribution of Rs. 5 crores from the Government of India with Section 30 of the LIC Act, 1956 providing the Life Insurance Corporation of India the exclusive rights to carry out life insurance business in India.

The changing economic scenario, liberalisation and globalisation of economy in the early 1990s prompted the government to appoint a high-powered committee in 1993 under the chairmanship of R. N. Malhotra, former Finance Secretary and Ex-Governor of Reserve Bank of India (RBI) to evaluate the structure of the Indian insurance industry and recommend its future direction. In addition, there was immense pressure from the international sphere for opening up of the insurance sector in India, as a member of the World Trade Organization (WTO). It was on the basis of the Malhotra Committee report that the then Finance Minister P. Chidambaram proposed the opening up of insurance to the private sector, including multinational companies. The Malhotra Committee Report justified the entry of foreign insurance companies by arguing that if it is permitted, it should be done on selective basis preferably through joint venture with Indian partner with not more than 26 percent stake. In 1999, the Insurance Bill was finally passed in both houses of parliament, with the formation of the Insurance Regulatory and Development Authority (IRDA) Act, 1999. It was also aimed at ending the monopoly of LICI and GICI in the country's insurance sector. Finally, the President gave his assent to the IRDA Act during April, 2000 and since then several private and foreign companies started to pour into the life insurance market in India.

Literature Review

Pre-Liberalisation Period Studies

Basu (1999) analysed the concepts of Life Fund and hinted at the contributions made by the Life Insurance Corporation of India (LICI) in the country's economic development during the period from 1994 to 1998. He

also emphasized on the marketing concepts and policies adopted by LICI in the enhancement of its product development and market share in the country's life insurance sector. Finally, the researcher concluded by providing an overview about the future challenges and opportunities that lay ahead of LICI in the future.

Rao (1999) examined the operating performances of Life Insurance Corporation of India (LICI) relating to the pattern and growth of new businesses, businesses in force, income and outgo (financial outflow) life fund, institutionalisation of savings, and businesses by different zones of LICI. In addition, these indicators were further compared with their related macro-economic variables such as life insurance penetration, life insurance density, life insurance capacity and life insurance savings. The analysis of zonal business of LICI revealed that the volume of business was greater in the more urbanised zones in comparison to the rural areas of our country. The study has also pointed out the lower contributions and coverage made by the Indian life insurance business to the country's national income and savings.

Post-Liberalisation Period Studies

Alamelu (2011) made an attempt to evaluate the financial soundness of 15 private life insurers and 1 public-sector life insurer LICI during the period from 2005-06 to 2007-08. The financial viability of the life insurers were studied based on 14 ratios (Financial Soundness Indicators) of the CAMELS model, as recommended by IMF. He also analysed the solvency and profitability of the life insurers for the aforesaid period. His study revealed that the financial soundness of the Indian life insurance companies was satisfactory, with the dominant player being LICI. He even concluded that the Indian life insurance sector has witnessed a robust growth with the advent of private players in 1999.

Ansari and Fola (2014) made an attempt to examine the financial soundness and performance of 7 life insurance companies in India (1 public-sector and 4 private-sectors) for the period from 2008-09 to 2012-13. The study was based on secondary data sources using 14 financial soundness indicators as suggested in the CAMELS model published jointly by IMF and World Bank. In addition, the CAMEL components were statistically tested using descriptive statistics, hypothesis testing

through the application of Levene's test for equality of variances, t-tests for equality of means, and other non-parametric tests. The study found statistical significance differences between capital adequacy, asset quality, management efficiency, earnings & profitability, and liquidity positions in private and public life insurance companies.

Bedi and Singh (2011) made an attempt to evaluate the performance of 18 life insurance players in India over the periods from 2001-02 to 2007-08. The change in investment strategy of LICI was evaluated for the period from 1980 to 2009. The data were analysed using the t-test and the two-way Anova approach. It was found that the total business of LIC shows an increasing trend. The collected and analysed data proved that the LPG is incorporating a positive influence on LIC of India and its performance. Among the private players, ICICI Prudential Life heads the race by taking over a lot of business of LIC due to aggressive and flexible product range.

Chandrasekaran (2009) has analysed the role and importance of LICI besides identifying the different methods of marketing of its policies undertaken by various types of agents. The study is based on both primary and secondary data covering the district of Madurai in Tamil Nadu. The primary survey was done on a sample size of 240 Agents and 300 policyholders covering the urban, semi-urban and the rural districts of Tamil Nadu. Tools such as percentages, measures of central tendency, z-test, chi-square analysis, and discriminant function analysis have been used for the analysis. The study has reflected the areas where LICI needed to revamp its marketing channels to remain competitive in tune with the private life insurers.

Dalal (2006) focused his study on the structural adjustments as a result of reforms and its impact on the performance of the insurance companies, which included LICI and the private life insurers. Some of the areas studied included individual and group business, sum assured, premium income, claims record, etc. For the purpose of analysing the profitability of the schemes, the researcher made a comparative study of LICI and private insurers in terms of Money back policies, Endowment policies and the children's policy. The study showed that public life insurer performed better than its private sector counterparts with respect to all the dimensions covered under the study.

Das, Davies and Podpiera (2003) proposed a set of key indicators that should be compiled and used for surveillance of the financial soundness of the insurance companies and the insurance sector as a whole. In the fifth section of the study, the authors have presented two sets of financial soundness indicators for the periodic monitoring of the insurance companies in the form of core and encouraged ones. The selected indicators were presented within the CAMELS framework, which adds the actuarial and reinsurance issues to the CAMELS methodology used in the banking sector. The paper also provides a brief overview of the insurance industry in general and reviews the risks it faces, as well as several recent failures of insurance companies that had systemic implications.

Das and Debnath (2012) made an attempt to evaluate the life insurance sector, inclusive of public and private-sector players, in terms of premium collection, policies underwritten, death claim settlement, profit position, and market share after the liberalisation of the country's insurance sector. The data were collected from published sources and the period of study was taken from 2003-04 to 2009-10. The authors came to a conclusion that for a life insurance company, it takes at least seven to eight years to reach breakeven. Based on their current study, they concluded that a majority of the private insurers recorded losses because just a decade has passed since the market was liberalised and hence it would be too early to comment about the profit figures of the companies. LIC has been able to record yearly profits because it is an established company and has achieved its break even long back. The authors also evaluated about the rise in innovative marketing models adopted by the private insurance players so as to reach to different sections of the society in a bid to improve upon their bottom-line.

Dar and Bhat (2015) made an attempt to evaluate the financial performances and soundness of the selected public sector and private sector life insurance companies in India (one from public sector and four from private sector) for the period from 2005-06 to 2012-13, using the three indicators of "Capital Adequacy", "Earnings and Profitability", and "Liquidity" based on the CAMELS model as published by IMF. In addition to the ratio analysis, the CAMEL parameters have been tested statistically with the help of the statistical applications of mean, standard deviation and T-test. The study has

found that the capital adequacy of the selected private life insurers was far better than the mean capital adequacy of the sole public-sector life insurer. However, in terms of earnings and profitability, the public sector life insurer has outperformed the private life insurers during the stated period.

Darzi (2011) analysed the financial performance of 12 (4 from public sector and 8 from private sector) general insurance companies in India for a five-year period from 2004-05 to 2008-09 based on the CAMELS framework, as published by IMF. The researcher analysed the financial performance of all the non-life insurers on the basis of 13 ratios covering all the parameters of the CAMELS model. The performances of the non-life insurers, based on ratios, were also evaluated in comparison to the ISI Standard benchmark for all of the calculated ratios. In addition to these, the researcher also conducted a regression analysis on the aspect of solvency of the non-life insurers. In most of the cases, it was found that the public insurers seem to have an upper hand over the private insurers as per the ISI standards.

Gulati and Jain (2013) made an attempt to evaluate the changes in the working and financial performance of LICI viz-a-viz market share and other aspects owing to the impact of the liberalisation, privatisation, and globalisation (LPG) policy of the Indian Government and the simultaneous rise in the entry of private life insurance players. The study was entirely based on secondary data sources and the selected period of study was considered from 1993-94 to 2008-09. A total of 6 ratios were computed based on the collected data, which were eventually analyzed to reflect the growth and productivity of LICI over the selected period of study. It was observed that the performance of LIC in terms of growth of new business, business in force in India, new business under group insurance and other performance measures was found to be satisfactory. Moreover, a significant improvement was noticed in the settlement of claims especially after the introduction of private players in the business.

Rajendran and Natarajan (2009) made an attempt to compare the financial status and growth of LICI during the pre and post LPG era. The data were taken from published secondary sources. The period of study was segregated into two parts – the first part of the study constituted the data of LICI during the period from 1956-57 to 1999-2000, and the second part of the study included the data

of LIC for the period from 2000-01 to 2007-08. The total business volume of LIC was considered, inclusive of its business outside India. The data were analysed using the method of least squares. It was found that the businesses in India, the business outside India as well as the total business of LIC were always in an increasing trend for the selected period of study. It was also found that the policy of LPG had a positive influence on LIC of India and its performance.

Rani and Shankar (2014) made an attempt to assess the financial performance of the 4 public sector general insurers in India in terms of capital adequacy and asset quality parameters. The study was based on secondary data sources and the period of study was considered from 2003-04 to 2012-13. Two financial ratios each from capital adequacy and asset quality has been used for the purpose of analysis. The study found the National Insurance Company Limited to be lagging behind in the areas of capital adequacy and asset quality ratios in comparison to the other three companies.

Sen (2011) analysed the profitability and growth of the public and private sector life insurance companies. The researcher has taken a total of 18 life insurers, including the sole public sector player LIC. The researcher has evaluated the financial performance of each of the life insurance companies in India for the period from 2000-01 to 2009-10 with the help of various statistical measures such as percentage, mean, ANOVA, correlations, Data Envelopment Analysis and Linear Trend. The cost efficiency of all the life insurance companies in India was also compared during the same period. The study has shown the dominating performances of LIC over its private-sector counterparts in terms of profitability and financial performances.

Sinha (2008) made an attempt to discuss the global and Indian scenarios with regard to the capital adequacy frameworks for life insurance companies. The paper has been organised primarily into three sections with theoretical emphasis on the US Risk-Based Capital Adequacy framework, Solvency I and II, and the Indian capital adequacy regulations of Indian life insurance companies respectively.

Sinha (2013) has analysed the financial soundness of two leading private life insurance companies operating in India, namely Bajaj Allianz Life Insurance and ICICI Prudential Life Insurance, based on the CAMELS framework as developed by IMF. The dataset covered a period of 6 years from 2004-05 to 2009-10 and the life insurers were selected based on the purposive sampling method. The results of both the players were found to have improved over the period of study.

Objectives, Methodology and Data Sources

The objective of the present research work was to analyse the financial performance, solvency and level of market concentration of the life insurance sector on the basis of the selected life insurers in India. The four leading life insurance players namely LIC, ICICI PruLife, HDFC Standard, and SBI Life were selected based on their market shares at the end of the FY 2012-13. The period of study has been considered for five successive FYs from 2008-09 to 2012-13. The data were mainly collected from the IRDA Annual Reports as well as from the websites of respective life insurers for the periods from 2008-09 to 2012-13. The CAMELS framework used for the present study, which is analogous to the CAMELS framework applied in the banking sector, is a ratio-based model as published by IMF to assess the financial stability and soundness of insurance companies. The solvency ratios for all the four leading life insurers over the FYs 2008-09 to 2012-13 were also discussed in the present study, in congruence with the stipulated IRDA regulations. In addition to these, the k-Concentration Ratio (CR_k), the Herfindahl-Hirschman Index (HHI), and the Normalised Herfindahl-Hirschman Index (NHHI) of the above four firms were also shown for the FYs 2008-09 to 2012-13 to evaluate the extent of concentration and competition prevailing in the country's life insurance sector over the given period. Furthermore, an attempt has been made to ascertain whether any significant differences exists in the performance of public sector life insurer (LIC) viz-a-viz the selected private life insurers in terms of total life insurance premium income over the period from 2008-09 to 2012-13 through the tests for Analysis of Variance (ANOVA) and Least Square Differences (LSD).

Table 1: Core Set of Financial Soundness Indicators

Categories	Indicators
A. Capital Adequacy	1. Capital Utilisation Efficiency Ratio (Net Premium/Capital) 2. Capital/Total Assets 3. Capital/Technical Reserves
B. Asset Quality	1. Equities/Total Assets 2. Real Estate + Unquoted Equities + Debtors/Total Assets 3. Non-Performing Loans to Total Gross Loans 4. Investment Income/Net Premium 5. Debtors/(Gross Premium + Reinsurance Recoveries)
C. Reinsurance and Actuarial Issues	1. Risk-Retention ratio (Net Premium/Gross Premium) 2. Net Technical Reserves/Average of Net Claims paid in last 3 years 3. Survival Ratio (Net Technical Reserves/Average of Net Premium received in last 3 years).
D. Management Soundness	1. Operating Expenses/Gross Premiums 2. Gross Premiums/No. of Employees 3. Assets per Employee (Total Assets/No. of Employees)
E. Earnings and Profitability	1. Loss Ratio (Net Claims/Net Premiums) 2. Expense Ratio (Expenses/Net Premiums) Combined Ratio (Loss Ratio + Expense Ratio) 3. Investment Income/Invested Assets 4. Revisions to Technical Reserves/Technical Reserves 5. Return on Equity (RoE)
F. Liquidity	1. Current Assets/Current Liabilities 2. Liquid Assets/Current Liabilities
G. Sensitivity to Market Risks	1. Duration of Assets and Liabilities. 2. Net Open Foreign Exchange position/Capital

Source: Das, U.S., Davies, N and Podpiera, R (2003), "Insurance and Issues in Financial Soundness", IMF Working Paper, WP/03/138, July.

A Discussion based on CARMELS framework and Market Concentration measures

Ratio Analysis based on the CARMELS framework

The CARMELS model is basically a ratio-based model of evaluating financial performance of insurance undertakings, as prescribed in the book by Das, Davies and Podpiera (2003) entitled as 'Financial Sector Assessment: A Handbook' published by the World Bank and IMF¹.

1 Das, U.S., Davies, N, and Podpiera, R. (2003): "Indicators of Financial Structure, Development, and Soundness", in "Financial Sector Assessment: A Handbook", World Bank and International Monetary Fund, Chapter-2, World Bank, Washington DC, USA, (<http://www.imf.org/external/pubs/ft/fsa/eng/pdf/ch02.pdf>)

For assessing the financial stability and soundness of an insurance sector including the individual insurers, the proposed FSIs have been classified into two different sets based on their significance, requirements and data availability. The two sets of indicators are as follows:-

- Core set of FSIs for regular monitoring of the insurance companies. It covers those aspects for which data are readily available and which are of vital importance for evaluating the financial viability of an insurance company. Table 1 presents a comprehensive list of the core set of FSIs used for the purpose of evaluating insurance undertakings.
- Encouraged set of indicators which are optional to the industry and computation of which depends upon the availability of data. They are of less priority compared to the former. According to the three

Table 2: Encouraged Set of Financial Soundness Indicators

Categories	Indicators
A. Capital Adequacy	1. Cover of Solvency margin 2. Risk-based Capital Adequacy ratios
B. Asset Quality	1. Assets/Liability position in financial derivatives to Total Capital 2. Investments; geographical distribution 3. Investments; sectorial distribution
C. Reinsurance and Actuarial Issues	1. Underwritten business; geographical distribution 2. Underwritten business; sectorial distribution 3. Underwritten business; distribution by main business
D. Management Soundness	1. Operating Expenses/Gross Premiums 2. Personal Expenses/Gross Premiums
E. Earnings and Profitability	1. Earnings per Employee (Net Premiums/No. of Employees) 2. Return on Assets (RoA) 3. Return on Revenue
F. Liquidity	1. Liquid Assets/Total Assets 2. Liquid Liabilities/Total Liabilities
G. Sensitivity to Market Risks	1. Market/Book Value 2. Price/Earnings ratio. 3. Price/Gross Premiums. 4. Group Debtors/Total Assets 5. Group Premium Claims/Total of Premium and Claims

Source: Das, U.S., Davies, N and Podpiera, R (2003), "Insurance and Issues in Financial Soundness", IMF Working Paper, WP/03/138, July.

researchers of IMF, the ratios falling under this category are not to be computed compulsorily as disclosure of relevant data by the insurers is inadequate in this regard. Table 2 presents a comprehensive list of the encouraged set of FSIs used for the purpose of evaluating insurance undertakings, depending upon the data availability.

Market Concentration Measures

k-Concentration Ratio (CR_k)

Let the industry have 'N' number of companies with their respective volume of output (say, Premium Underwritten), "P", where $I = 1, 2, \dots, N$. Then the k-Concentration Ratio is the cumulative share of the biggest k companies in the industry ($1 \leq k \leq N$). Therefore,

$$CR_k = \sum S_i, (i = 1 \text{ to } k)$$

The k-Concentration Ratio ranges from 0 to 100 thereby indicating the level of market concentration and competition prevailing in the industry. A k-Concentration

Ratio of '0' indicates a market situation of perfect competition, whereas a ratio of '100' indicates a monopoly market situation in the industry. A low k-Concentration Ratio indicates greater competition among the firms in the industry. On the contrary, a very high k-Concentration Ratio indicates a market situation ranging from 'Oligopoly' to 'Monopoly'.²

Herfindahl-Hirschman Index (HHI) and Normalised Herfindahl-Hirschman Index (NHHI)

This indicator is calculated as the sum of squares of market shares. It is considered as one of the most commonly accepted measures of market concentration. Thus,

$$HHI = \sum S_i^2, (i = 1 \text{ to } N)$$

The index varies from 0 to 10,000 (or 0 to 1, if market shares are expressed in terms of fractions rather than percentages). The value of 0 and 10,000 represents 'Perfect Competition' and 'Monopoly' respectively.³

² IRDA Annual Report, 2012-13

³ IRDA Annual Report, 2012-13

Table 3: Capital Adequacy Ratio Analysis of the Selected Indian Life Insurers

Categories	Financial Soundness Indicators	Year	LICI	ICICI PruLife	HDFC Standard	SBI Life
Capital Adequacy	Capital Utilisation Efficiency Ratio (Net Premium/Capital)	2012-13	410.95	2.64	5.08	3.87
		2011-12	384.66	2.82	4.58	6.17
		2010-11	508.32	3.72	4.04	7.96
		2009-10	508.34	3.44	3.43	8.03
		2008-09	467.71	3.20	2.98	7.20

Source: Calculated

Similarly, the Normalised Herfindahl-Hirschman Index (NHHI) can be further calculated to find out more precisely the level of concentration and competition prevailing in the Indian life insurance sector. The normalised Herfindahl-Hirschman index also ranges from 0 to 1.

$NHHI = [H - (1/N)] / [1 - (1/N)]$, where H is the usual Herfindahl-Hirschman Index and N is the number of firms.⁴

Findings and Analysis

Analysis of the Financial Parameters in CAMELS framework

The CAMELS framework, as developed by IMF, suggested a number of indicators to diagnose the health of the insurance sector. All the ratios have been calculated with respect to times. No ratios could be computed for the 'Sensitivity to Market Risk' category due to non-availability of necessary information in the IRDA Annual Reports and other published sources.

Capital Adequacy

For the capital adequacy analysis of the life insurers, the Net Premium to Capital ratio has been considered. Capital is defined as the aggregate of total equity capital plus reserves and surplus. Net Premium is defined as Gross Premium plus Reinsurance Accepted minus Reinsurance ceded. Higher is the ratio, higher is the performance of the insurer. From the available data in Table 3, we find that LICI was way ahead of its private sector counterparts in terms of the Net Premium to Capital ratio. The higher ratios in case of LICI reflect its significant premium-base in comparison to the new players. This was because of its

continued and dominating presence in the country's life insurance sector since 1956.

Asset Quality

For the asset quality analysis of the life insurers, the Investment Income to Net Premium ratio has been used in present study. In other words, the Investment Income is the aggregate of 'Income from Investments' of both the policyholder's account and the shareholder's account, the figures of which are obtained from the respective statements. Higher is the ratio, better is the ranking of the insurers. From the available data in Table 4, we find that the ratio was comparatively higher in case of LICI than the private players, with an average of 50%. The private life insurers registered a negative investment income during the year 2008-09 owing to excessive losses arising out of sale/revaluation of investments, mainly on account of recessionary economic conditions during the said financial year.

Reinsurance and Actuarial Issues

For this purpose, two ratios have been used in the present study i.e. the Risk-Retention ratio and the Survival ratio. The term 'Net Technical Reserves' includes the amount of reserves and surplus plus the available insurance reserves and the amount of provision for linked liabilities of the respective individual insurers. The risk-retention ratio, in other words, reflects the extent of reinsurance done by the insurers. From Table 5, we find that the risk-retention capacity of the life insurers was almost the same for all the life insurers, with no significant changes. On the other hand, a lower survival ratio reflected higher amounts of net claim benefits paid over the last three years, in comparison to the amount of technical reserves held by the life insurers. The survival ratios have been impressive for the private life insurers since they have been in the business for a few years with most of their policies have

⁴ "Report on Trend and Progress of Banking in India 2009-10", Published by the RBI, can be accessed at <http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RTP081110FL.pdf>

Table 4: Asset Quality Ratio Analysis of the Selected Indian Life Insurers

Categories	Financial Soundness Indicators	Year	LICI	ICICI PruLife	HDFC Standard	SBI Life
Asset Quality	Investment Income/Net Premium	2012-13	0.563	0.492	0.232	0.436
		2011-12	0.415	0.329	0.028	0.052
		2010-11	0.471	0.472	0.236	0.237
		2009-10	0.604	0.283	0.827	0.593
		2008-09	0.272	(0.398)	(0.306)	(0.227)

Source: Calculated

Table 5: Reinsurance and Actuarial Ratios of the Selected Indian Life Insurers

Category	Financial Soundness Indicators Used	Years	LICI	ICICI PruLife	HDFC Standard	SBI Life
Reinsurance & Actuarial Issues	Risk Retention Ratio (<i>Net Premium/Gross Premium</i>)	2012-13	0.998	0.991	0.994	0.993
		2011-12	0.999	0.993	0.995	0.995
		2010-11	0.999	0.996	0.994	0.997
		2009-10	0.999	0.996	0.993	0.997
		2008-09	0.999	0.997	0.992	0.998
	Survival Ratio (<i>Net Technical Reserves/Avg. of Net Claim Benefits paid in last 3 years</i>)	2012-13	0.91	5.66	8.53	5.48
		2011-12	1.41	6.97	10.04	9.72
		2010-11	2.13	9.23	12.83	18.05
		2009-10	2.62	14.10	18.54	32.49
		2008-09	1.69	19.04	15.32	22.89

Source: Calculated

not yet reached their maturity phase.

Management Soundness

For the purpose of this analysis, two ratios have been used for the study such as the Operating Expenses to Gross Premium ratio and the Commission to Net Premium ratio. Lower are the ratios, better is the management efficiency of the insurers, and therefore better is the ranking of the insurers. From Table 6, we find that in the case of the first ratio, LICI is much ahead of its private counterparts with a ratio of below 10%, in all the respective years. Among the private players, the performance of SBI Life was quite impressive with figures close to the public sector player LICI. The second ratio reflected a satisfactory situation for all the life insurers with a ratio of less than 10% in all the years.

Earnings and Profitability

For the purpose of this analysis, two ratios have been used for the study i.e. the Loss Ratio and the Expense ratio. The claims cost indicates the claims paid or payable on account of insurance claims as well as the benefits promised under various policies by the insurers, that had not been ceded to reinsurers. The expense ratio is computed as the aggregate of operating expenses, commission expenses and the other administrative expenses not directly related to insurance business to the net premiums. Lower the ratios, better is the insurers' profitability position and therefore better is their ranking. From Table 7, we find that LICI and ICICI PruLife experienced a higher loss ratio over the years than the other life insurers. The loss ratios for the private players such as HDFC Standard Life and SBI Life were quite low since they have been in the business for few years, with most of the policies still awaiting their maturity phase. The expense ratio for LICI and SBI Life was satisfactory and was much below the IRDA stipulated guidelines of 20 percent.

Table 6: Management Soundness Ratio Analysis of the Selected Indian Life Insurers

Category	Financial Soundness Indicators Used	Years	LICI	ICICI PruLife	HDFC Standard	SBI Life
Management Soundness	Management Expense Ratio (<i>Operating Expenses/Gross Premium</i>)	2012-13	0.08	0.151	0.119	0.11
		2011-12	0.073	0.143	0.124	0.078
		2010-11	0.083	0.122	0.166	0.068
		2009-10	0.066	0.155	0.215	0.065
		2008-09	0.057	0.178	0.316	0.086
	Commission Ratio (<i>Net Commission/Net Premium</i>)	2012-13	0.071	0.057	0.056	0.049
		2011-12	0.069	0.043	0.056	0.039
		2010-11	0.065	0.031	0.053	0.052
		2009-10	0.065	0.036	0.075	0.074
		2008-09	0.064	0.045	0.076	0.065

Source: Calculated

Table 7: Earnings & Profitability Ratio Analysis of the Selected Indian Life Insurers

Category	Financial Soundness Indicators Used	Years	LICI	ICICI PruLife	HDFC Standard	SBI Life
Earnings and Profitability	Loss Ratio (<i>Net Claim Benefits paid/Net Premiums</i>)	2012-13	0.647	0.989	0.377	0.751
		2011-12	0.579	0.607	0.291	0.365
		2010-11	0.547	0.594	0.316	0.227
		2009-10	0.425	0.437	0.192	0.084
		2008-09	0.334	0.144	0.123	0.055
	Expense Ratio (<i>Expenses/Net Premiums</i>)	2012-13	0.151	0.209	0.177	0.161
		2011-12	0.143	0.188	0.182	0.118
		2010-11	0.149	0.154	0.221	0.123
		2009-10	0.131	0.193	0.293	0.141
		2008-09	0.121	0.224	0.396	0.151

Source: Calculated

Liquidity

Liquidity ensures that all Indian insurance companies should have sufficient cash/bank balances to meet the immediate claims of the policyholders, in the form of death or surrender claims. For the purpose of this analysis, the two ratios has been used i.e. the Current Ratio (Current Assets/Current Liabilities) and the Liquid Assets (or Current Assets) to Total Assets ratio. Higher are the ratios, better is the liquidity position of an insurer to meet the short-term obligations of its policyholders. From Table 8, we find that the liquidity position of LICI was comparatively better than all the private life insurers. We also find that LICI and SBI Life, in case of the second ratio, were comparatively in a much better position to

meet its short-term commitments over the years, than the rest of the life insurers.

Solvency Ratio Analysis

From Table 9, we find that the solvency ratios of all the life insurers is more than the Required Solvency Margin of 1.5 or 150%, as stipulated by IRDA for all the life insurance companies operating in India. LICI maintained a similar solvency margin for all the respective years. But for the private players, ICICI PruLife maintained a healthy solvency ratio over the years thereby indicating its satisfactory long-term financial health. Higher the solvency ratios, better is the position of the insurers to meet its long-term financial obligations.

Table 8: Liquidity Ratio Analysis of the Selected Indian Life Insurers

Category	Financial Soundness Indicators Used	Years	LICI	ICICI PruLife	HDFC Standard	SBI Life
Liquidity	Current Ratio (<i>Current Assets/Current Liabilities</i>)	2012-13	5.85	0.65	0.98	2.39
		2011-12	3.09	0.54	0.85	2.41
		2010-11	3.72	0.42	0.80	0.78
		2009-10	2.26	0.38	0.62	0.55
		2008-09	2.48	0.57	1.07	0.40
	Liquid Assets/Total Assets	2012-13	0.092	0.017	0.04	0.063
		2011-12	0.071	0.013	0.037	0.066
		2010-11	0.047	0.01	0.036	0.02
		2009-10	0.043	0.01	0.034	0.026
		2008-09	0.056	0.019	0.076	0.027

Source: Calculated

Table 9: Solvency Ratio Analysis of the Selected Indian Life Insurers

Category	Measure of Solvency	Years	LICI	ICICI PruLife	HDFC Standard	SBI Life
Solvency	Net Assets/Net Premium Written	2012-13	1.54	3.96	2.17	2.15
		2011-12	1.54	3.71	1.88	5.34
		2010-11	1.54	3.27	1.72	2.04
		2009-10	1.54	2.90	1.80	2.17
		2008-09	1.54	2.31	2.58	2.92

Source: Calculated

Ranking of Life Insurers on the basis of Ratios used in CAMELS framework

The analysis has been made on the performance of the four selected life insurers on the basis of 10 ratios falling within the CAMELS framework. While ranking the life insurers, one ratio i.e. the risk-retention ratio has been dropped, since the values were almost the same for all the selected life insurers. Thus, the final ranking has been done on the basis of 9 ratios under the CAMELS model. The ranking of the respective life insurers has been shown under Tables 10 – 13, which have been computed based on the following steps:-

- The performance-wise ranking of all the insurers for each ratio is done for each year, based on their individual comparative performances.
- Next, the individual ranks were multiplied with the weights assigned for each of the given years; i.e. the FY 2012-13, FY 2011-12, FY 2010-11, FY 2009-10 and FY 2008-09 were assigned the weights of 5,

4, 3, 2, and 1 respectively based on their improved financial performances with every passing year. The recent years were given more weightage in comparison to the previous years.

- Further, the weighted ranks of a particular company for a particular ratio for all the years were added and the total so obtained is divided by the aggregate of weights i.e. 15, in this case in order to obtain their weighted average ranks.
- An average ranking of a particular company is done, by adding the weighted average ranks obtained by it under each ratio divided by the total number of ratios i.e. 09, in this case.
- At the end, a final ranking is done using the value of the average ranks. The one with the minimum average rank is given the first rank and the next placed insurers are given the ranks based on the ascending order of magnitude.

Based on the above results, we find that LICI was found to be the best among all the selected life insurers over the

Table 10: Computation of Average Ranks and Final Ranks for LIC

LICI	2012-13	2011-12	2010-11	2009-10	2008-09	Weighted Avg. Rank	Avg. Rank	Final Rank
Ratios Used	Weighted Ranks							
Capital Utilisation Efficiency ratio	5	4	3	2	1	1	1.95	1
Investment Income to Net Premium	5	4	6	4	1	1.33		
Survival ratio	20	16	12	8	4	4		
Operating Expenses to Gross Premiums	5	4	6	4	1	1.33		
Commission ratio	20	16	12	4	2	3.6		
Loss Ratio	10	12	9	6	4	2.73		
Expense ratio	5	8	6	2	1	1.47		
Current ratio	5	4	3	2	1	1		
Liquid Assets to Total Assets ratio	5	4	3	2	2	1.07		

Source: Calculated

Table 11: Computation of Average Ranks and Final Ranks for SBI Life

SBI Life	2012-13	2011-12	2010-11	2009-10	2008-09	Weighted Avg. Rank	Avg. Rank	Final Rank
Ratios Used	Weighted Ranks							
Capital Utilisation Efficiency ratio	15	8	6	4	2	2.33	2.09	2
Investment Income to Net Premium	15	12	9	6	2	2.93		
Survival ratio	15	8	3	2	1	1.93		
Operating Expenses to Gross Premiums	10	8	3	2	2	1.67		
Commission ratio	5	4	6	6	3	1.6		
Loss Ratio	15	8	3	2	1	1.93		
Expense ratio	10	4	3	4	2	1.53		
Current ratio	10	8	9	6	4	2.47		
Liquid Assets to Total Assets ratio	10	8	9	6	3	2.4		

Source: Calculated

Table 12: Computation of Average Ranks and Final Ranks for HDFC Standard Life

HDFC Standard Life	2012-13	2011-12	2010-11	2009-10	2008-09	Weighted Avg. Rank	Avg. Rank	Final Rank
Ratios Used	Weighted Ranks							
Capital Utilisation Efficiency ratio	10	12	9	8	4	2.87	2.67	3
Investment Income to Net Premium	20	16	12	2	3	3.53		
Survival ratio	5	4	6	4	3	1.47		
Operating Expenses to Gross Premiums	15	12	12	8	4	3.4		
Commission ratio	10	12	9	8	4	2.87		
Loss Ratio	5	4	6	4	2	1.4		
Expense ratio	15	12	12	8	4	3.4		
Current ratio	15	12	6	4	2	2.6		
Liquid Assets to Total Assets ratio	15	12	6	4	1	2.53		

Source: Calculated

Table 13: Computation of Average Ranks and Final Ranks for ICICI PruLife

ICICI PruLife	2012-13	2011-12	2010-11	2009-10	2008-09	Weighted Avg. Rank	Avg. Rank	Final Rank
Ratios Used	Weighted Ranks							
Capital Utilisation Efficiency ratio	20	16	12	6	3	3.8	3.29	4
Investment Income to Net Premium	10	8	3	8	4	2.2		
Survival ratio	10	12	9	6	2	2.6		
Operating Expenses to Gross Premiums	20	16	9	6	3	3.6		
Commission ratio	15	8	3	2	1	1.93		
Loss Ratio	20	16	12	8	3	3.93		
Expense ratio	20	16	9	6	3	3.6		
Current ratio	20	16	12	8	3	3.93		
Liquid Assets to Total Assets ratio	20	16	12	8	4	4		

Source: Calculated

5-year period from 2008-09 to 2012-13, and is therefore assigned the first rank. Among the private life insurers, SBI Life was ranked second followed by HDFC Standard and ICICI PruLife respectively. The performances of HDFC Standard and ICICI PruLife Life were also found to be satisfactory, though they require improvement in certain financial areas.

Analysis of Market Concentration of the Indian Life Insurance sector

In the present study, the life insurers has been selected based on their market shares calculated for the years 2008-09 to 2012-13, with reference to their individual total premium incomes computed as a percentage to the total life premium income collected during the given year. Table 14 presents a description of the selected life insurers in India.

Table 15 gives the respective market shares of each of the best-performing individual life insurers for their years of operation i.e. 2008-09 to 2012-13, and the four-firm market concentration indices which were calculated on the basis of their individual market shares.

From Table 15, a four-firm concentration ratio (CR_4) of more than 80%, based on the data of four firms, normally represents a highly concentrated market condition in any sector. Hence, it can be concluded that the country's life insurance sector is being primarily dominated by a small group of firms. Moreover, the four-firm HHI and the NHHI values also justifies the fact by showing an average index value of 0.50 and 0.35 respectively, thereby pointing out to a fairly competitive market condition in the Indian life insurance sector.

Table 14: Year of Operation of the Selected Indian Life Insurers

Name of Life Insurers	Indian Promoter	Foreign Promoter	Year of Operation (Date of Registration with IRDA)
HDFC Standard Life Insurance Co. Ltd.	HDFC	Standard Life Assurance, UK	2000-01 (23 rd October, 2000)
ICICI Prudential Life Insurance Co. Ltd.	ICICI Bank Ltd.	Prudential, UK	2000-01 (24 th November, 2000)
SBI Life Insurance Co. Ltd.	State Bank of India	BNP Paribas Assurance SA, France	2001-02 (20 th March, 2001)
Life Insurance Corporation of India	Government of India	None	1956 (01 st September, 1956)

Source: Calculated

Table 15: Individual Market Shares and Four-Firm Market Concentration Indices

Years	LICI	ICICI PruLife	HDFC Life	SBI Life	HHI	NHHI	CR ₄
2008-09	0.7092	0.0692	0.0251	0.0325	0.509	0.35	0.836
2009-10	0.7010	0.0623	0.0264	0.0381	0.497	0.33	0.828
2010-11	0.6978	0.0613	0.0309	0.0443	0.494	0.32	0.834
2011-12	0.7067	0.0488	0.0355	0.0458	0.505	0.34	0.837
2012-13	0.7271	0.0472	0.0395	0.0364	0.534	0.38	0.850

Source: Calculated

Table 16: Total Life Insurance Premium (in Rs. Lakhs)

Years	LICI	ICICI PruLife	HDFC Std. Life	SBI Life
2008-09	157288.04	15356.22	5564.69	7212.10
2009-10	186077.31	16528.75	7005.10	10104.03
2010-11	203473.40	17880.63	9004.17	12911.64
2011-12	202889.28	14021.58	10202.40	13133.74
2012-13	208803.58	13538.24	11322.68	10450.03

Source: Calculated

ANOVA and Testing of Hypothesis

Based on the dataset provided in Table 16, the Null Hypothesis (H_0) and the Alternate Hypothesis (H_1) were taken as follows:

H_0 : There are no significant differences in the performance of LICI and other private life insurance players i.e. ICICI PruLife, HDFC Standard, and SBI Life respectively.

H_1 : There are significant differences in the performance of LICI and other private life insurance players i.e. ICICI PruLife, HDFC Standard, and SBI Life respectively.

By applying the one-way ANOVA approach at the 0.05 level of significance (i.e. $\alpha = 0.05$) and using the IBM-SPSS statistical software 20, the results obtained were as follows as given in Table 17 and 18.

From the above results, we find that the p-value is less than the α , which indicates that there is a significant difference in the performance of LICI and other private life insurers over a period of 2008-09 to 2012-13. Hence, the Least Square Differences (LSD) was obtained between each of the life insurers, the results of which are given in Table 18.

Concluding Observations

Based on the present study, we find that liquidity was one of the areas of concern for the private life insurers and needs serious improvement to be at par with LICI. The private life insurers should also try to have a control over their management expense ratios in comparison to LICI. Despite these, the present study revealed the improved performances of the private life insurers and hinted at overpowering the dominance of LICI in the years ahead. There were significant differences observed in the performance of public sector life insurance player with

Table 17: Results of ANOVA

Sources of Variation	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	121744932493.437	3	40581644164.479	354.775	.000
Within Groups	1830194366.788	16	114387147.924		
Total	123575126860.225	19			

Source: Calculated

Table 18: Multiple Comparisons (LSD) among the Life Insurers

INSURERS (I)	INSURERS (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LICI	ICICI PruLife	176241.23800*	6764.23382	.000	161901.7029	190580.7731
	HDFC Life	183086.51400*	6764.23382	.000	168746.9789	197426.0491
	SBI Life	180944.01400*	6764.23382	.000	166604.4789	195283.5491
ICICI PruLife	LICI	-176241.23800*	6764.23382	.000	-190580.7731	-161901.7029
	HDFC Life	6845.27600	6764.23382	.327	-7494.2591	21184.8111
	SBI Life	4702.77600	6764.23382	.497	-9636.7591	19042.3111
HDFC Life	LICI	-183086.51400*	6764.23382	.000	-197426.0491	-168746.9789
	ICICI PruLife	-6845.27600	6764.23382	.327	-21184.8111	7494.2591
	SBI Life	-2142.50000	6764.23382	.756	-16482.0351	12197.0351
SBI Life	LICI	-180944.01400*	6764.23382	.000	-195283.5491	-166604.4789
	ICICI PruLife	-4702.77600	6764.23382	.497	-19042.3111	9636.7591
	HDFC Life	2142.50000	6764.23382	.756	-12197.0351	16482.0351

Source: Calculated

* The mean difference is significant at the 0.05 level.

the selected private life insurers over the study period from 2008-09 to 2012-13, mainly because of the first-mover advantage enjoyed by LICI in the country's life insurance sector. The country's life insurance sector gave indications about a fairly competitive market condition, which is expected to go up with the Government of India having recently approved the FDI limit from 26% to 49% in the insurance sector. The present study manifested the pre-existing dominance of LICI even after 15 years since the privatisation of the country's life insurance sector.

Limitations and Scope for Further Research

Though the researcher has made an endeavour to incorporate all the ratios in the present study as discussed in the CAMELS framework but due to insufficiency and unavailability of data, all the ratios could not be shown in the present study. Moreover, the study was based on only four selected life insurers for a period from 2008-09 to 2012-13, hence no proper assessment/conclusion would be appropriate to make about the overall performance of the Indian life insurance sector.

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