Financial Soundness of Indian Life Insurance Firms : An Investigation Based on the CARAMELS Framework

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Abstract

Liberalization of the Indian life insurance sector has brought about a lot of opportunities and challenges. The enactment of the IRDAI Act in 1999 brought in a lot of opportunities with the rising presence of private and foreign players in the country's life insurance sector. On the flip side, the Indian life insurance sector experienced severe setbacks in terms of low profits and negative investment yield post 2007-08 owing to the contagion effects of the global financial crisis that erupted in U.S. during the year 2007-08. At the same time, the liberalization of the country's life insurance sector has further raised concerns for the life insurers in ensuring financial soundness for timely payment of assured returns to the policyholders' besides protection of the policyholders' interests. The present study provided an assessment of the financial soundness of 18 life insurance firms in India during the post-deregulation study-period from 2008-09 to 2014-15 in the backdrop of the U.S. financial crisis. In this regard, the ratio-based CARAMELS framework was used in line with the financial soundness indicators (FSIs), as proposed by the researchers of the World Bank and International Monetary Fund (IMF). The present study pointed out the impressive performances of the private life insurers in overpowering the dominance of the state-owned LICI, besides highlighting the contagion effects of the global financial crisis on the country's life insurance sector.

Key words : **life insurance, CARAMELS, financial soundness, US financial crisis, IRDAI**

JEL Classification : G22, L10, L25

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Globalization of the insurance market, as a part of the overall process of liberalization in an emerging country like India, enabled the private and foreign life insurance companies to put their foothold into the Indian life insurance market either independently or in collaboration with Indian partners. Though LICI [1] happened to be the largest company operating in the country's life insurance sector, yet an abrupt rise in the number of private players in the country's life insurance sector has eventually raised concerns about the performances of the life insurers in protection of the consumers' interests and timely payment of assured returns to the policyholders. Furthermore, the country's life insurance sector has been experiencing a sharp decline in profits and negative investment yield following the global financial crisis since 2007-08. The present study tries to address the financial viability of the public and private-sector players in the country's life insurance sector during the post-liberalization period from 2008-09 to 2014-15 in the backdrop of the global financial crisis and insurance-sector reforms.

The first part of the study provides an insight into the financial performances of the individual life insurance players based on a selected set of ratios underlying the core and encouraged set of financial soundness indicators (FSIs) of the CARAMELS (Capital adequacy, Asset quality, Reinsurance & Actuarial issues, Management

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soundness, Earnings and profitability, Liquidity, and Sensitivity to market risks) framework, as proposed by Das, Davies, and Podpiera (2005) in their working paper published by IMF. In the second part of the study, an attempt has been made to evaluate the relative position of the life insurance companies during the period under review.

Literature Review

Having reviewed the most pertinent past research papers, I did not find evidence of any such studies conducted in India or abroad that comprehensively focused on the post-recessionary financial performances of the Indian life insurance sector in the backdrop of the global financial crisis and insurance sector reforms. The present study intends to fill this research gap. Some of the literatures reviewed relating to the present area of research have been summarized below in a tabular form (Table 1).

Table 1. Summary of Past Studies on Financial Performances of Insurance Firms

Sl. No.	Author (s) & Year of Publication	Research Focus	Research Methodology	Period of Study	Area of Work
1	Alamelu (2011)	The author assessed the financial soundness of 16 (one public-sector & 15 private-sector) Indian life insurance companies.	CARAMELS model	2005 - 2008	Life Insurance
2	Ansari and Fola (2014)	The researchers examined the financial soundness and performance of seven (one public-sector & six private-sector) Indian life insurers.	CARAMELS model	2008 - 2013	Life Insurance
3	Chakraborty (2016)	The author evaluated the extent of concentration and competition prevailing in the Indian life insurance market, besides analysis of individual performances of life insurers.	Concentration ratios, one-way Anova, LSD	2008 - 2014	Life Insurance
4	Chakraborty & Sengupta (2014)	The researchers examined the financial soundness and performance of two (one public-sector & one private-sector) leading Indian life insurance companies.	CARAMELS model	2010 - 2012	Life Insurance
5	Darzi (2011)	The author assessed the financial performance of 12 (four public-sector & eight private-sector) Indian non-life insurers and the factors affecting their solvency.	CARAMELS model, Multiple regression analysis	2004 - 2009	General Insurance
6	Ghimire (2013)	The author analyzed the financial soundness of 16 non-life insurance companies in Nepal.	CARAMELS model	2007 - 2011	General Insurance
7	Hariharan, Sailaja, & Patel (2017)	The researchers examined different reporting practices used by Indian life insurers for risk management and risk governance in their annual reports.	Risk Management model	----	Life Insurance
8	Rani and Shankar (2014)	The researchers assessed the financial performances of four public-sector Indian non-life insurance companies.	Ratio Analysis, CARAMELS model	2003 - 2013	General Insurance
9	Sinha (2013)	The author examined the financial soundness and performances of two leading private-sector Indian life insurance companies.	CARAMELS model	2004 - 2010	Life Insurance
10	Sinha (2012)	The author assessed the financial soundness of the 18 (one public-sector & 17 private-sector) Indian life insurance companies.	CARAMELS model	2001 - 2010	Life Insurance

Conceptual Framework

The CARAMELS model is basically a ratio-based model of evaluating financial performance of insurance undertakings, as prescribed in the IMF working paper by Das, Davies, and Podpiera (2003) entitled as *Insurance and Issues in Financial Soundness,* which was eventually published in a book form jointly by the IMF and the World Bank in 2005. The selected financial soundness indicators (FSIs) are presented within the CARAMELS framework, which adds the 'Reinsurance and Actuarial issues' to the CAMELS (Capital adequacy, Asset Quality, Management Soundness, Earnings and Profitability, Liquidity, and Sensitivity to Market Risks) methodology routinely used by banks for their performance evaluation.

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 FSIs were developed in congruence with the increasing risks associated with the insurance sector. The two sets of indicators are as follows:-

(i) Core set of FSIs for periodic monitoring of the insurance companies. It covers those aspects for which data are

Table 2. Core Set of FSIs under CARAMELS Framework

Category	Indicators	Non-Life	Life
Capital Adequacy	Net Premium/Capital	X	
	Capital/Total Assets	X	X
	Capital/Technical Reserves		X
Asset Quality	(Real estate + Unquoted Equities + Debtors)/Total Assets	X	X
	Debtors/(Gross Premium + reinsurance recoveries)	X	X
	Equities/Total Assets	X	X
	Non-Performing Loans to Total Gross Loans		X
Reinsurance &	Risk-retention ratio (Net premium/Gross premium)	X	X
Actuarial Issues	Net Technical Reserves/Average of Net Claims paid in last 3 years	X	
	Net Technical Reserves/Average of Net Claims received in last 3 years		X
Management Soundness	Gross Premium/No. of Employees	X	X
	Assets per Employee (Total assets/No. of Employees)	X	X
Earnings & Profitability	Loss Ratio (Net claims/Net premium)	X	
	Expense ratio (Expenses/Net premium)	X	X
	Combined ratio = Loss ratio + Expense ratio	X	
	Revisions to technical reserves/technical reserves		X
	Investment income/Net premium	X	
	Investment income/investment assets		X
	Return on Equity (ROE)	X	X
Liquidity	Liquid assets/Current Liabilities	X	X
Sensitivity to Market Risk	Net open foreign exchange position/Capital	X	X
	Duration of assets and liabilities		X

Source: - Reproduced from U.S. Das, N. Davies, & R. Podpiera (2003). *Insurance and issues in financial soundness.* IMF Working paper series (WP/03/138, July), pp. 1 - 43. Retrieved from https://www.imf.org/external/pubs/ft/wp/2003/wp03138.pdf

Table 3. Encouraged Set of FSIs under CARAMELS Framework

Category	Indicators	Non-Life	Life
Capital Adequacy	Cover of solvency margin	X	X
	Risk-based capital adequacy ratios	X	X
Asset Quality	Asset/liability position in financial derivatives to total capital	X	X
	Investments: Geographical distribution	X	X
	Investments: Sector distribution	X	X
Reinsurance & Actuarial Issues	Underwritten business: Geographical distribution	X	X
	Underwritten business: Sector distribution	X	X
	Underwritten business: distribution by main business lines	X	X
Management Soundness	Operating expenses/Gross premium	X	X
	Personnel expenses/Gross Premium	X	X
Earnings & Profitability	Earnings per employee (Net profit/No. of Employees)	X	X
	Return on Assets (ROA)	X	X
	Return on revenue (Net income/Total revenue)	X	
Liquidity	Liquid assets/Total assets	X	X
	Liquid liabilities/Total liabilities		X
Market-based indicators	Market/Book-value	X	X
	Price/Earnings (P/E) ratio	X	X
	Price/Gross Premium	X	X
Group Exposures	Group Debtors/Total assets	X	X
	Group (premium + claims)/total (premium + claims)	X	X

Source: - Reproduced from U.S. Das, N. Davies, & R. Podpiera (2003). *Insurance and issues in financial soundness.* IMF Working paper series (WP/03/138, July), pp. 1 - 43. Retrieved from https://www.imf.org/external/pubs/ft/wp/2003/wp03138.pdf

readily available and which are of vital importance for evaluating the financial viability of an insurance company. The Table 2 presents a comprehensive list of the core set of FSIs used for the purpose of evaluating insurance undertakings.

(ii) Encouraged set of FSIs that includes the additional indicators useful for monitoring more specific areas of insurance risks and vulnerabilities, which are optional to the industry and computation of which depends upon the availability of data. According to the three researchers of IMF, the ratios falling under this category need adequate availability and disclosure of relevant data by the insurers for the purpose of computation. The Table 3 presents a comprehensive list of the encouraged set of FSIs used for the purpose of evaluating insurance undertakings, depending upon the data availability.

The IMF researchers (Das et al., 2003, 2005) did not discuss about any benchmark targets that need to be achieved or maintained by the insurance companies against each of the ratios, as discussed under the Core and Encouraged set of FSIs in the CARAMELS framework for assessment of their financial soundness and stability. According to the Das et. al (2003, 2005), for the FSIs to be useful, the insurance companies must compare the ratios over time and with its peers for the purpose of performance-analysis.

Objectives of the Study

The present study has two-fold objectives which are listed as follows:

(1) To analyze the financial soundness of the 18 life insurance companies in India based on the CARAMELS framework during the period from 2008-09 to 2014-15.

(2) To assess the impact of the global financial meltdown on the financial performance of the Indian life insurance sector during the period under review.

Research Methodology

(1) Sample Selection : The objective of the present study is confined only in the post-reform period since the financial year 1999-2000, so the subsequent period of reforms has only been considered. Moreover, the performances of the private life insurers in their initial years of operation were not too impressive, with a majority of them reporting a negative profit. It was only during the recent years since 2008-09 that the life insurers have registered significant profit margins. The other reason for the selection of the time-period beyond 2008-09 was to judge the extent of the impact of the global financial crisis upon the performances of the life insurance firms under review. Though the global financial crisis emerged in U.S. during the year 2007-08, but its ripples were even felt in our country's insurance sector. As a result, the performance of the Indian life insurers went down on account of negative investment yield and low profit margins. Furthermore, the life insurers making entry in between the years covering the study-period has not been considered, given their newness in the industry. Hence, the purposive sampling approach was employed to shortlist 17 private life insurers and one public-sector life insurer who have been consistently in operation covering all the years of the study-period from 2008-09 to 2014-15.

(2) Research Tools : While deciding on the most suitable tool for analysis, I found that extensive literature review

Table 4. Summary of FSIs Used Under CARAMELS Framework

CARAMELS components	FSIs chosen for the Study	
	Core set of FSIs	**Encouraged set of FSIs**
Capital Adequacy [C]	Capital/Total Assets ratio	Solvency margin ratio
Asset Quality [A]	Non-Performing Loans/Total Gross Loans	----------
Reinsurance and	Risk-retention ratio (Net Premium/Gross Premium)	----------
Actuarial Issues [RA]	Survival Ratio (Net Technical Reserves/ Average of Net Premium received in the last 3 years)	
Management Soundness [M]	Commission ratio[#] (Gross Commission paid/Gross Premium)	Management Expense ratio (Operating Expenses/Gross Premium)
Earnings and Profitability [E]	Expense ratio (Total Expenses/Net Premium)	----------
	Investment Income/Net Premium	
Liquidity [L]	Current Ratio (Current Asset/Current Liabilities	Liquid Assets/Total Assets
		Liquid Liabilities/Total Liabilities
Sensitivity to Market Risks [S]	N.A. due to Data Insufficiency	N.A.

[#]Commission Ratio has been added in the Core set of FSIs, since it is a widely-used ratio computed and presented by the Indian Life Insurance companies in their annual reports.

reveals the application of the ratio-based CARAMELS framework as the appropriate model for studies related to performance analysis of insurance firms. In view of the past research studies, the first part of the study has employed the application of the ratio-based CARAMELS model in determining the financial performance of the life insurance firms during the post-financial crisis period. A ranking process has been initiated in the second part of the study to assess the relative performances of the life insurance firms during the period under review. I used a set of 12 ratios (i.e. eight from the core set of FSIs, and the remaining four from the encouraged set of FSIs) against each of the parameters of the CARAMELS model, as classified under the core and encouraged ones. This has been summarized in Table 4.

(3) Data Sources : The secondary data for the present research work have been collected from the IRDAI Annual Reports from 2008-09 to 2014-15 and from the websites of the respective life insurers.

Analysis and Results

(1) Performance Appraisal Using the Ratio - Based CARAMELS Framework : The ratio-based CARAMELS framework provides a list of FSIs that have been used to assess the financial performance of the Indian life insurance sector during the period under review. No ratios could be computed for the financial indicator *'S'*, that is, *'Sensitivity to Market Risks'* due to the lack of data disclosure practices followed by the Indian insurance companies.

(i) Capital Adequacy (C) : Capital is viewed as a cushion that protects the interests of the policyholders and promotes the stability and financial efficiency of the insurers. It also provides an indication that whether the insurers have sufficient capital to cover up the losses arising out of unexpected claims. However, there are no internationally accepted standards for risk-based capital adequacy requirements in the insurance sector unlike in the banking sector. Accordingly, two capital adequacy ratios have been used in the present study; the former reflects the assets-risk while the latter reflects the long-term liquidity position of the life insurers. The solvency margin ratio of an insurance company is expressed as a ratio of available solvency margin (ASM) [2] to required solvency margin (RSM) [3]. Every insurer is required to maintain a solvency margin of 1.5 times or 150% as stipulated by IRDAI as per section 64 VA of the Insurance Act, 1938.

The Table 5 reflects the core and encouraged set of FSIs dealt under capital adequacy for the life insurers under review. The findings suggest that the private life insurance companies have been able to maintain a comparatively higher solvency margin than LICI over the period. Furthermore, the analysis reveals that the assets-base of the public-sector giant LICI has been increasing in comparison to the private players. This also points out to the fact that the amount of reserves built by LICI during the pre-liberalization era were being used to meet the solvency requirements and enhancement of its assets-base during the post-liberalization period, without any further infusion of capital. Among the private life insurers, SBI Life reflected a much-improved asset-base over the study-period.

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[2] The term 'Available Solvency Margin' (ASM) refers to the aggregate of the excess in policyholders' funds and the shareholders' funds.

[3] The term 'Required Solvency Margin' is referred to as an amount in excess of the value of assets over the amount of life insurance liabilities and other liabilities of policyholders' funds & shareholders' funds, and should not be less than an amount as prescribed by the IRDAI (Assets, Liabilities, and Solvency Margin of Insurers) Regulations, 2000.

Table 5. Capital Adequacy FSIs of the Indian Life Insurers

(Figures in times)

Capital Adequacy [C]	Financial Soundness Indicators (FSIs)													
	Capital/Total Assets Ratio							Solvency Margin Ratio						
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	0.0004	1.540	1.540	1.540	1.540	1.540	1.540	1.540
ICICI PruLife	0.048	0.058	0.066	0.067	0.067	0.077	0.126	3.369	3.720	3.960	3.710	3.270	2.900	2.310
HDFC Standard	0.037	0.042	0.052	0.063	0.075	0.088	0.147	1.960	1.940	2.170	1.880	1.720	1.800	2.580
SBI Life	0.053	0.054	0.050	0.044	0.039	0.042	0.066	2.160	2.280	2.150	5.340	2.040	2.170	2.920
BAJAJ Allianz	0.148	0.143	0.121	0.087	0.056	0.035	0.067	7.610	7.340	6.340	5.150	2.860	2.680	2.620
MNYL	0.061	0.081	0.097	0.114	0.127	0.164	0.243	4.250	4.850	2.070	5.339	3.650	3.220	3.040
BSLI	0.068	0.082	0.099	0.105	0.110	0.129	0.174	2.050	1.860	2.670	2.990	2.890	2.110	2.440
Reliance Life	0.170	0.160	0.161	0.156	0.146	0.175	0.295	3.550	4.420	4.290	3.530	1.660	1.860	2.500
TATA-AIA	0.093	0.104	0.110	0.120	0.133	0.166	0.226	4.170	4.090	3.410	2.840	2.160	2.110	2.510
Kotak-M	0.081	0.083	0.071	0.061	0.062	0.078	0.123	3.130	3.020	5.210	3.060	2.670	2.790	2.690
Exide Life	0.169	0.173	0.176	0.189	0.200	0.167	0.254	2.900	2.390	1.800	2.160	3.000	1.790	2.260
PNB MetLife	0.144	0.161	0.170	0.180	0.199	0.220	0.329	2.190	2.280	2.930	1.650	1.690	1.650	2.270
AVIVA Life	0.186	0.204	0.210	0.210	0.214	0.227	0.281	3.740	4.150	4.230	5.149	5.400	5.120	5.910
Sahara Life	0.250	0.276	0.272	0.249	0.243	0.264	0.420	5.650	6.840	5.780	5.280	4.820	4.500	3.600
Shriram Life	0.184	0.193	0.158	0.118	0.094	0.087	0.182	4.150	6.410	5.590	4.990	3.960	2.690	3.050
Bharti-AXA	0.433	0.470	0.486	0.502	0.525	0.566	0.620	2.070	2.090	1.820	2.340	2.140	1.680	2.070
Future Generali	0.361	0.388	0.423	0.414	0.471	0.515	0.669	2.910	3.180	4.170	3.860	2.210	2.340	3.170
IDBI Federal	0.166	0.198	0.223	0.250	0.275	0.289	0.520	5.070	4.720	4.900	6.610	6.600	4.050	6.110

(ii) Asset Quality (A) : The predominant factor affecting the health of an insurance company depends on the quantum of existing and potential credit risks associated with the loans and investment portfolios of the companies, real-estate investments, exposure to security markets, weak loans and advances, as well as off-balance sheet transactions. The FSI here reflects the quantum of non-performing assets held by the life insurers in proportion to their total quality of gross loans. Though this ratio has been extensively used mostly by the financial institutions such as banks and micro-finance institutions, its importance and requirement has also been felt in the insurance domain as this asset-class has resulted into insurance failures in several countries [4]. The Table 6 presents the single set of FSI dealt under the asset quality component of the CARAMELS framework for the life insurers under review.

Based on the results obtained from the Table 6, we find that all the life insurers, excepting LICI, reported 'Nil' amount of non-performing loans to total gross loans in their total assets portfolio during the study period. This may be attributed to the regulations and restrictions imposed by the regulatory body on the Indian life insurance

[4] Like Japan (during 1997 to 2001, seven life insurers failed as a consequence of high NPLs), Korea (13 life and three non-life insurers failed during 1998 to 2002 and suffered from NPLs and liquidity problem), Australia (HH non-life failed in 2001 suddenly, apparently due to mismanagement), UK (Insurance Corporation of Ireland-ICI-non-life came close to formal liquidation due to poor underwriting in its London branch in 1985), Canada (Confederation Life failed due to partial real estate market and liquidity problem in 1994), Ethiopia (Universal Insurance - General in 1997, the case is still in court).

Table 6. Asset Quality FSI of the Indian Life Insurers

(Figures in times)

Asset Quality [A]	Financial Soundness Indicator (FSI)						
	Non-Performing Loans/Total Gross Loans						
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	0.071	0.060	0.052	0.024	0.020	0.025	0.011
ICICI PruLife	Nil	Nil	Nil	Nil	Nil	Nil	Nil
HDFC Standard	Nil	Nil	Nil	Nil	Nil	Nil	Nil
SBI Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
BAJAJ Allianz	Nil	Nil	Nil	Nil	Nil	Nil	Nil
MNYL	Nil	Nil	Nil	Nil	Nil	Nil	Nil
BSLI	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Reliance Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
TATA-AIA	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kotak-M	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Exide Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
PNB MetLife	Nil	Nil	Nil	Nil	Nil	Nil	Nil
AVIVA Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Sahara Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Shriram Life	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Bharti-AXA	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Future Generali	Nil	Nil	Nil	Nil	Nil	Nil	Nil
IDBI Federal	Nil	Nil	Nil	Nil	Nil	Nil	Nil

companies in extending credit to customers and from investments in stock markets. The increase in the non-performing loans to total gross loans ratio of LICI may also be a result of the loan facilities granted to customers, mostly against their life insurance policies in force, and the carry forward of such non-performing assets over the years in its balance sheet.

(iii) Reinsurance and Actuarial Issues (R) and (A) : The risk - hedging strategy in the life insurance sector can be exclusively dealt by two significant ratios under the core set of FSIs, as proposed by Das et al. (2003). The first one represents the risk-retention ratio, expressed as a ratio of net premiums to gross premiums, and is applied for both life and non-life insurance businesses. The risk-retention ratio reflects the overall underwriting strategy of the insurer and shows the portion of risk passed on to the reinsurers. Higher ratio may be preferred to lower ones, as a higher risk-retention ratio indicates that the life insurers are more prone at retaining the risks at their own destiny rather than passing on a considerable proportion of the risks to the reinsurers.

The second ratio exclusively deals with the adequacy of technical reserves, and is included in the core set of FSIs. It is the ratio of 'net technical reserves to the average of net premiums received in the last three years' – also referred to as survival ratio in the context of assessment of life insurance firms. The ratio is considered as an analogous indicator for life insurers in determining their financial strength and viability. Higher ratios may be preferred to lower ones, as higher ratios indicate an increase in technical reserves set aside by the life insurers in comparison to the average of net premiums received by them in the last three years, thereby highlighting a better financial health of a life insurance company.

Table 7. Reinsurance & Actuarial FSIs of the Indian Life Insurers

(Figures in times)

Reinsurance & Actuarial Issues [RA]	Financial Soundness Indicators (FSIs)													
	Risk Retention Ratio (Net Premium/Gross Premium)							Survival Ratio (Net Technical Reserves/Avg. of Net Premium Received in last three years)						
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	0.999	0.999	0.998	0.999	0.999	0.999	0.999	0.346	0.402	0.538	0.732	0.945	0.998	0.630
ICICI PruLife	0.991	0.988	0.991	0.993	0.996	0.996	0.997	5.573	4.214	4.055	3.794	3.724	3.556	2.564
HDFC Standard	0.995	0.992	0.994	0.995	0.994	0.993	0.992	3.375	2.961	2.821	2.743	2.904	2.703	1.581
SBI Life	0.993	0.992	0.993	0.995	0.997	0.997	0.998	3.137	2.337	2.329	2.294	2.498	2.269	1.291
BAJAJ Allianz	0.988	0.988	0.992	0.993	0.996	0.997	0.998	4.565	4.042	3.679	3.529	3.324	2.789	1.769
MNYL	0.992	0.991	0.989	0.989	0.987	0.987	0.991	1.849	1.718	1.716	1.788	1.882	1.780	1.142
BSLI	0.968	0.961	0.968	0.976	0.985	0.985	0.987	4.345	3.689	3.634	3.331	3.464	3.429	2.662
Reliance Life	0.994	0.994	0.992	0.995	0.996	0.997	0.996	2.475	2.677	2.793	2.893	3.037	2.958	2.344
TATA-AIA	0.992	0.995	0.995	0.997	0.997	0.996	0.995	4.061	3.182	2.787	2.524	2.513	2.239	1.206
Kotak-M	0.979	0.981	0.981	0.985	0.988	0.994	0.985	3.748	3.129	2.906	2.597	2.533	2.330	1.815
Exide Life	0.993	0.993	0.997	0.996	0.998	0.998	0.994	1.291	1.262	1.650	2.016	2.325	2.326	1.547
PNB MetLife	0.961	0.971	0.977	0.980	0.984	0.988	0.991	3.023	2.660	2.607	2.563	2.747	2.567	1.733
AVIVA Life	0.964	0.974	0.980	0.989	0.992	0.993	0.992	3.181	2.409	2.430	2.622	2.998	2.844	2.009
Sahara Life	0.999	0.999	0.999	0.999	0.999	0.999	0.999	2.254	2.140	2.452	2.629	2.674	2.427	1.560
Shriram Life	0.997	0.995	0.994	0.998	0.999	0.998	0.998	2.087	2.033	2.009	2.301	2.684	2.545	1.752
Bharti-AXA	0.985	0.987	0.989	0.993	0.994	0.996	0.997	2.211	2.372	2.497	2.397	2.511	2.532	1.783
Future Generali	0.973	0.969	0.971	0.982	0.986	0.988	0.969	1.293	1.314	1.283	1.254	1.187	1.222	1.711
IDBI Federal	0.992	0.989	0.992	0.992	0.994	0.996	0.998	1.930	2.091	2.162	2.371	2.482	2.715	2.521

The Table 7 reflects the core set of FSIs dealt under the 'Reinsurance & Actuarial issues' component of the CARAMELS framework over the FYs 2008-09 to 2014-15 for the life insurers under review. Based on the results obtained from the Table 7, the risk-retention ratio of the life insurers range between a minimum of 0.961 or 96.1% to a maximum of 0.999 or 99.9%, thereby reassuring the fact that the life insurers do not rely considerably on reinsurers for risk-mitigation, as non-life insurers generally do. The analysis of the life insurers' survival ratio reveals that the private-sector life insurers were better in holding the marginally higher reserves relatively to average net premiums received in the last three years. In contrast, the public-sector life insurer LICI recorded insignificant figures of less than one in all the years of the study-period, despite of the fact that it enjoyed first-mover advantages in the country's life insurance sector.

(iv) Management Soundness (M) : Sound management is crucial for financial stability and soundness of the insurers. Unsound efficiency indicators could flag potential problems in key areas, including the management of technical and investment risks. Based on the encouraged set of FSIs, the ratio of 'Operating expenses to gross premiums' (also referred to as the management expense ratio) has been considered in the present study. Lower ratios may be preferred to higher ones, as lower ratios indicate the efficiency of the life insurers in controlling costs and enhancement of profit margins. Moreover, as a statutory measure, section 40B of the Insurance Act, 1938 has mandated the Indian life insurers not to spend as 'expenses of management' in any calendar year in excess of the

Table 8. Management Soundness FSIs of the Indian Life Insurers

(Figures in times)

Management Soundness [M]	Financial Soundness Indicators (FSIs)													
	Management Expense Ratio (Operating Expenses/Gross Premium)							Commission Ratio (Gross Commission paid/Gross Premium)						
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	0.093	0.085	0.080	0.073	0.083	0.066	0.057	0.063	0.071	0.071	0.069	0.066	0.065	0.064
ICICI PruLife	0.108	0.130	0.151	0.143	0.122	0.156	0.178	0.036	0.050	0.057	0.043	0.031	0.036	0.046
HDFC Standard	0.101	0.118	0.119	0.124	0.166	0.215	0.316	0.042	0.043	0.058	0.057	0.053	0.075	0.076
SBI Life	0.091	0.114	0.110	0.078	0.068	0.065	0.086	0.047	0.052	0.049	0.041	0.049	0.080	0.060
BAJAJ Allianz	0.186	0.252	0.232	0.188	0.167	0.155	0.176	0.035	0.030	0.040	0.050	0.069	0.089	0.101
MNYL	0.152	0.174	0.185	0.196	0.248	0.309	0.417	0.090	0.090	0.090	0.090	0.090	0.090	0.100
BSLI	0.166	0.215	0.222	0.206	0.212	0.241	0.256	0.040	0.049	0.060	0.060	0.070	0.091	0.110
Reliance Life	0.320	0.323	0.315	0.233	0.238	0.248	0.389	0.061	0.080	0.080	0.070	0.080	0.096	0.121
TATA-AIA	0.235	0.206	0.214	0.209	0.235	0.294	0.390	0.044	0.041	0.037	0.039	0.062	0.081	0.087
Kotak-M	0.220	0.216	0.206	0.189	0.195	0.20	0.259	0.060	0.051	0.043	0.038	0.044	0.061	0.097
Exide Life	0.256	0.266	0.273	0.286	0.289	0.284	0.321	0.062	0.072	0.068	0.079	0.076	0.073	0.077
PNB MetLife	0.245	0.241	0.235	0.207	0.225	0.269	0.317	0.059	0.060	0.051	0.040	0.030	0.115	0.175
AVIVA Life	0.300	0.228	0.240	0.246	0.242	0.298	0.388	0.039	0.040	0.050	0.037	0.043	0.070	0.08
Sahara Life	0.255	0.173	0.196	0.173	0.135	0.147	0.192	0.054	0.075	0.092	0.098	0.091	0.094	0.117
Shriram Life	0.415	0.314	0.267	0.203	0.159	0.203	0.155	0.055	0.056	0.077	0.077	0.051	0.109	0.128
Bharti-AXA	0.519	0.613	0.576	0.582	0.759	0.986	1.56	0.066	0.057	0.048	0.036	0.050	0.095	0.107
Future Generali	0.385	0.357	0.369	0.456	0.566	0.815	1.78	0.051	0.067	0.087	0.110	0.130	0.239	0.144
IDBI Federal	0.191	0.223	0.239	0.256	0.259	0.260	0.373	0.067	0.102	0.109	0.087	0.082	0.077	0.048

'limits' [5] specified in Rule 17 D of the Insurance Rules, 1939.

The ratio of 'Gross commission paid to gross premiums underwritten' by the life insurers – also referred to as the commission ratio has been additionally included in the present study. Given the significance and frequency of usage by the life insurers in the schedules forming part of their annual reports, it may not be a distant dream when the commission ratio gets its due recognition as a distinct financial soundness indicator for the insurance companies. Hence, the same has been considered in the present study as a core set of FSI for the life insurance firms in the 'Management Soundness' parameter under the CARAMELS model, although it did not appear in the recommended list of FSIs as proposed by Das et al. (2003). The Table 8 reflects the core and encouraged set of FSIs dealt under 'Management Soundness' of the life insurers under review.

Based on the results obtained from the Table 8, we find that the management expense ratios for the public-sector life insurer LICI was quite encouraging over the study-period with figures less than 10%. Among the private life insurers, SBI Life has been impressive with ratios below the 10% mark, excepting some fluctuations, and was

[5] After the 31st day of December, 1950, no insurer shall, in respect of the life insurance business transacted by him/her in India, spend as 'expenses of management' in any calendar year in excess of 10% of the first year's premium as shown in the revenue account and 20% of the renewal premiums as shown in the revenue account in respect of that business transacted in India during the year.

Table 9. Earnings and Profitability FSIs of the Indian Life Insurers

(Figures in times)

Earnings and Profitability [E]	Financial Soundness Indicators (FSIs)													
	Expense Ratio (Expenses/Net Premium)							Investment Yield Ratio (Investment Income/Investment Assets-Average)						
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	0.156	0.156	0.151	0.143	0.149	0.131	0.121	0.105	0.109	0.111	0.103	0.104	0.102	0.096
ICICI PruLife	0.149	0.184	0.209	0.188	0.154	0.193	0.224	0.517	0.353	0.351	0.421	1.129	0.954	(0.138)
HDFC Standard	0.145	0.162	0.177	0.182	0.221	0.293	0.396	0.327	0.207	0.277	0.275	0.497	0.342	0.042
SBI Life	0.139	0.167	0.161	0.118	0.123	0.141	0.151	0.281	0.175	0.188	0.122	0.236	0.307	(0.159)
BAJAJ Allianz	0.226	0.282	0.275	0.241	0.232	0.240	0.276	0.347	0.255	0.381	0.295	0.739	0.889	(0.424)
MNYL	0.250	0.270	0.280	0.290	0.345	0.401	0.524	0.241	0.135	0.152	0.135	0.260	0.325	(0.024)
BSLI	0.222	0.275	0.289	0.268	0.283	0.339	0.369	0.893	0.412	0.563	0.104	1.046	2.072	(0.468)
Reliance Life	0.394	0.405	0.398	0.307	0.317	0.343	0.512	0.361	0.218	0.301	0.531	0.959	0.934	(0.986)
TATA-AIA	0.282	0.248	0.253	0.249	0.298	0.375	0.479	0.329	0.199	0.161	0.136	0.212	0.134	0.008
Kotak-M	0.284	0.271	0.254	0.230	0.241	0.260	0.361	0.441	0.231	0.404	0.234	0.491	0.508	(0.298)
Exide Life	0.325	0.340	0.342	0.367	0.366	0.359	0.401	0.197	0.138	0.159	0.143	0.215	0.381	(0.168)
PNB MetLife	0.315	0.307	0.291	0.256	0.263	0.389	0.496	0.277	0.185	0.232	0.211	0.226	0.251	0.067
AVIVA Life	0.317	0.285	0.295	0.288	0.288	0.368	0.468	0.159	0.274	0.281	0.361	0.805	0.553	0.397
Sahara Life	0.332	0.263	0.287	0.271	0.226	0.242	0.309	0.096	0.121	0.131	0.124	0.125	0.148	0.112
Shriram Life	0.471	0.374	0.345	0.280	0.210	0.312	0.284	0.186	0.173	0.439	0.219	0.398	0.365	0.115
Bharti-AXA	0.597	0.681	0.629	0.623	0.814	1.084	1.682	0.561	0.382	0.334	0.021	0.678	0.591	0.075
Future Generali	0.460	0.439	0.469	0.579	0.708	1.067	1.986	0.216	0.144	0.106	0.098	0.197	0.151	0.089
IDBI Federal	0.264	0.336	0.352	0.345	0.343	0.338	0.422	0.218	0.164	0.202	0.069	0.280	0.333	0.0009

close on the heels of the state-owned giant LICI. The rise in management expense ratios of the private life insurers may be in line with their expansion of branch networks, high initial costs related to sourcing and servicing of customers, inflationary market conditions, and competition from the established players in the industry. The state-owned giant LICI faced a stiff competition in the commission ratio from the private life insurers, despite of the latter's newness in the industry. Some of the new players in the life insurance industry such as PNB MetLife and Future Generali Life reported the highest commission ratios in their initial years but went on to improve their performances in the later years of the study-period. The rise in the commission ratio of the private life insurers at their early years of operation can be attributed to the higher amount of commission paid to the direct agents and intermediaries in comparison to their growth in business volumes.

(v) Earnings and Profitability (E) : Earnings are the key and arguably the only long-term source of capital base for an insurance company. Low profitability may signal fundamental problems of the insurer and hence considered as a leading indicator for solvency problems. The expense ratio is a commonly used measure of profitability for both the life insurance and general insurance companies. The expense ratio in insurance jargon refers to the portion of premiums used to pay all the relevant costs related to acquisition and administrative expenses, writing, and servicing insurance and reinsurance expenses, etc. Lower ratios may be preferred to higher ones, as lower ratios indicate more profits to the life insurance companies. In addition to this, the investment yield ratio – expressed as a

ratio of 'investment incomes' to 'average of investment assets' – is considered as an appropriate indicator of the success of their investment policies, since life insurance companies function to a large extent as asset managers. This ratio measures the return obtained from the investment assets of both the policyholders and shareholders. Higher ratios may be preferred to lower ones, as higher ratios indicate increased profitability and a sound investment policy for the life insurers in the absence of any internationally accepted benchmarks. The Table 9 reflects the core set of FSIs dealt under 'Earnings & Profitability' of the life insurers under review.

Based on the results obtained from the Table 9, higher expense ratios are witnessed for the newly-inducted private life insurers such as Future Generali Life and Bharti-AXA Life, which may be in sync with their higher initial costs related to expansion of branch networks, sourcing and servicing of customers, inflationary market conditions, and competition from the established players in the industry. The ratios are found to be impressive for the public-sector giant LICI with figures hovering between 12% - 15% over the study-period, thereby indicating its efficient cost-control upon its operating and non-operating expenses. Among the private life insurers, SBI Life insurance company recorded the lowest expense ratios and was close on the heels of the public-sector life insurer LICI.

The analysis of the investment yield ratios is quite encouraging for the private life insurers and shows drastic signs of improvement over the study-period, excepting for the year 2008-09. Excepting LICI and a handful of private life insurers, the performance of the life insurance sector in the financial year 2008-09 was largely influenced by the contagion effects of the U.S. sub-prime crisis of 2007-08. Because of higher volatility in the financial markets during the FY 2008-09, majority of the insurance companies lost heavily on their investment incomes. The financial year 2008-09 reported negative investment-yield figures for eight life insurers among a total of 18 life insurance companies under review. Even those life insurers who reported a positive investment-yield ratio during 2008-09 could not totally escape the tide of the financial crisis. The profitability of such insurance companies deteriorated in 2008-09 not only due to low investment yield, but also because of high cost of guarantees, lower revenues from management fees, and impairment in the value of their investments. The financial markets showed gradual signs of improvement during 2009-10, and a favourable trend was witnessed in the performances of all the life insurers since the downturn observed in the wake of the financial crisis.

(vi) Liquidity (L) : Liquidity is the sixth component of the CARAMELS framework that is used to evaluate the financial soundness of insurance companies. The term liquidity ensures adequate cash/bank balances and highly liquid investments of the insurers to efficiently meet any short-term obligations and immediate claims of the policyholders. Hence, the insurers need to plan their liquidity carefully since the frequency, severity, and timing of insurance claims or benefits are uncertain.

The current ratio determines a firm's short-term assets - liabilities position to indicate whether the firm can efficiently service its short-term claims. The claims can either be in the form of death claims, surrender claims, or any short-term benefits desired to be paid to the policyholders according to the terms of the contract. The 'liquid assets (or current assets) to total assets' ratio of the life insurers determines the amount of liquid assets held by them in proportion to its total assets base. Higher current/liquid ratios may be preferred to lower ones, as higher ratios reflect the insurer's ability to efficiently service its short-term obligations of the policyholders.

The 'liquid liabilities (or current liabilities) to total liabilities' ratio of the life insurers determines the percentage of liquid liabilities to its total liabilities. The insurance companies should be in a position to meet their short-term obligations side-by-side with their long-term obligations from their total assets base. In other words, the insurance companies should plan and review their assets-liabilities position in such a way that it commensurate its future obligations with the amount of assets held at their disposal. Lower ratios may be preferred to higher ones, as higher ratios indicate the requirements of a higher amount of assets at the disposal of the life insurers to set-off their immediate obligations, which may have an impact on their profitability and working capital position.

Table 10. Liquidity FSIs of the Indian Life Insurers

(Figures in times)

Liquidity [L]	Financial Soundness Indicators (FSIs)																				
	Current Ratio (Current Assets/Current Liabilities)							Liquid Assets/Total Assets						Liquid Liabilities/Total Liabilities							
	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
LICI	6.132	7.131	5.850	3.090	3.720	2.260	2.480	0.068	0.090	0.092	0.071	0.047	0.043	0.056	0.011	0.012	0.016	0.023	0.013	0.019	0.023
ICICI PruLife	0.691	0.587	0.650	0.540	0.420	0.380	0.570	0.015	0.014	0.017	0.013	0.010	0.010	0.019	0.021	0.024	0.026	0.024	0.022	0.026	0.032
HDFC Standard	0.886	0.965	0.980	0.850	0.800	0.620	1.070	0.026	0.027	0.040	0.037	0.036	0.034	0.077	0.029	0.028	0.042	0.043	0.044	0.055	0.071
SBI Life	2.362	2.503	2.390	2.410	0.780	0.550	0.400	0.059	0.067	0.063	0.066	0.019	0.026	0.027	0.025	0.026	0.027	0.027	0.042	0.048	0.067
BAJAJ Allianz	0.864	1.110	1.030	0.810	0.770	0.470	0.630	0.036	0.043	0.041	0.024	0.020	0.015	0.029	0.042	0.040	0.039	0.029	0.026	0.032	0.046
MNYL	0.978	0.896	0.660	0.640	0.620	0.750	0.830	0.041	0.045	0.051	0.045	0.043	0.052	0.064	0.041	0.051	0.077	0.071	0.069	0.069	0.077
BSLI	1.154	0.967	0.830	0.860	0.850	0.820	0.810	0.025	0.032	0.034	0.038	0.032	0.036	0.054	0.022	0.033	0.040	0.044	0.038	0.044	0.066
Reliance Life	0.750	0.342	0.370	0.750	0.790	0.860	0.850	0.054	0.041	0.030	0.022	0.022	0.037	0.062	0.072	0.119	0.081	0.030	0.028	0.043	0.074
TATA-AIA	0.719	0.753	0.940	0.730	0.680	0.610	0.770	0.027	0.023	0.031	0.027	0.026	0.029	0.060	0.038	0.030	0.032	0.038	0.039	0.047	0.078
Kotak-M	0.837	0.823	0.740	0.670	0.720	0.700	0.910	0.031	0.031	0.032	0.028	0.023	0.027	0.050	0.036	0.038	0.043	0.041	0.031	0.039	0.054
Exide Life	1.571	1.395	1.380	1.080	0.980	0.830	0.980	0.060	0.066	0.068	0.037	0.039	0.038	0.076	0.037	0.047	0.049	0.034	0.041	0.046	0.079
PNB MetLife	0.864	0.990	0.870	0.770	0.650	0.530	0.720	0.035	0.040	0.035	0.039	0.0215	0.028	0.052	0.040	0.041	0.039	0.050	0.034	0.051	0.072
AVIVA Life	0.338	0.685	0.620	0.510	0.640	0.810	0.730	0.014	0.034	0.025	0.020	0.021	0.033	0.040	0.039	0.049	0.041	0.040	0.033	0.041	0.055
Sahara Life	2.430	1.744	2.330	1.880	1.820	1.690	2.040	0.135	0.076	0.084	0.080	0.055	0.051	0.065	0.055	0.044	0.036	0.043	0.030	0.030	0.033
Shriram Life	1.013	1.318	1.360	1.450	1.050	0.660	0.940	0.083	0.103	0.109	0.093	0.050	0.048	0.097	0.082	0.078	0.080	0.064	0.047	0.072	0.104
Bharti-AXA	0.944	0.841	1.010	0.800	1.040	0.840	0.840	0.040	0.039	0.036	0.034	0.042	0.060	0.103	0.043	0.046	0.035	0.042	0.040	0.071	0.122
Future Generali	1.165	1.678	1.710	1.390	1.320	1.060	0.780	0.039	0.044	0.052	0.054	0.056	0.085	0.090	0.033	0.027	0.030	0.039	0.043	0.080	0.11
IDBI Federal	1.658	1.829	1.480	1.410	1.030	1.010	1.020	0.071	0.072	0.074	0.062	0.076	0.124	0.133	0.044	0.039	0.050	0.045	0.074	0.120	0.130

Based on the Table 10, it is evident that the public-sector life insurer LICI reported superior liquidity performance in comparison to the private life insurers, but it is encouraging to find gradual signs of improvement demonstrated by the private life insurers over the study period, given their newness in the industry and strict insurance regulations. The noteworthy performances in current ratios are in favour of the newcomers in the life insurance industry such as IDBI Federal Life, Sahara Life, and Shriram Life Insurance with consistent figures of more than one over the entire duration of the study period.

(2) Assessment of Relative Performances of the Indian Life Insurers : The relative performances of the individual life insurers are reviewed based on a final set of 10 FSIs out of a total of 12 FSIs, inclusive of the core and encouraged ones, as presented under the CARAMELS model. The two ratios that were dropped and kept out of the ranking process are the risk-retention ratio and the non - performing loans to total gross loans ratio since these ratios failed to provide any notion on the relative performances of the life insurers under review. An attempt has been made in line with the methodology proposed by Sinha (2012) for the purpose of determining the relative performances of the life insurers during the period under review by giving equal weightage to the shortlisted FSIs as used in the present study. The steps have been elaborated as follows:-

Table 11. Depiction of Ranks for ICICI PruLife Based on FSIs Used

ICICI PruLife	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs)Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	3	4	4	5	5	4	5	4.29		
Solvency Margin Ratio	9	9	9	9	6	5	14	8.71		
Survival Ratio	1	1	1	1	1	1	2	1.14		
Management Expense Ratio	4	4	4	4	3	5	5	4.14		
Commission Ratio	2	6	8	7	2	1	1	3.86	6.66	1
Expense Ratio	3	4	4	4	3	3	3	3.43		
Investment Yield Ratio	3	3	5	2	1	2	12	4.00		
Current Ratio	17	17	16	17	18	18	17	17.14		
Liquid Assets to Total Assets Ratio	17	18	18	18	18	18	18	17.86		
Liquid Liabilities to Total Liabilities Ratio	2	2	2	2	2	2	2	2.00		

Table 12. Depiction of Ranks for SBI Life Based on FSIs Used

SBI Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	4	3	2	2	2	3	2	2.57		
Solvency Margin Ratio	14	13	14	2	14	10	7	10.57		
Survival Ratio	8	11	12	14	13	14	15	12.43		
Management Expense Ratio	1	2	2	2	1	1	2	1.57		
Commission Ratio	7	8	5	6	5	8	3	6.00	7.09	2
Expense Ratio	1	3	2	1	1	2	2	1.71		
Investment Yield Ratio	9	11	12	13	12	13	13	11.86		
Current Ratio	3	2	2	2	11	15	18	7.57		
Liquid Assets to Total Assets Ratio	6	5	6	4	17	16	17	10.14		
Liquid Liabilities to Total Liabilities Ratio	4	3	3	3	13	11	8	6.43		

Table 13. Depiction of Ranks for LICI Based on FSIs Used

LICI	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	1	1	1	1	1	1	1	1.00		
Solvency Margin Ratio	18	18	18	18	18	18	18	18.00		
Survival Ratio	18	18	18	18	18	18	18	18.00		
Management Expense Ratio	2	1	1	1	2	2	1	1.43		
Commission Ratio	15	13	12	11	10	3	4	9.71	7.17	3
Expense Ratio	4	1	1	2	2	1	1	1.71		
Investment Yield Ratio	17	17	17	15	17	18	4	15.00		
Current Ratio	1	1	1	1	1	1	1	1.00		
Liquid Assets to Total Assets Ratio	4	2	2	3	5	7	11	4.86		
Liquid Liabilities to Total Liabilities Ratio	1	1	1	1	1	1	1	1.00		

Table 14. Depiction of Ranks for Bajaj Allianz Life Based on FSIs Used

Bajaj Allianz Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	10	9	9	6	3	2	3	6.00		
Solvency Margin Ratio	1	1	1	5	9	8	9	4.86		
Survival Ratio	2	2	2	2	3	5	8	3.43		
Management Expense Ratio	7	13	10	6	7	4	4	7.29		
Commission Ratio	1	1	2	8	11	10	11	6.29	7.21	4
Expense Ratio	6	10	7	6	7	4	4	6.29		
Investment Yield Ratio	6	5	4	4	5	4	16	6.29		
Current Ratio	12	8	8	10	12	17	16	11.86		
Liquid Assets to Total Assets Ratio	11	9	9	15	16	17	16	13.29		
Liquid Liabilities to Total Liabilities Ratio	13	10	8	4	3	4	4	6.57		

Table 15. Depiction of Ranks for HDFC Standard Life Based on FSIs Used

HDFC Standard Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	2	2	3	4	6	7	6	4.29		
Solvency Margin Ratio	17	16	13	16	15	14	10	14.43		
Survival Ratio	6	6	5	5	6	7	12	6.71		
Management Expense Ratio	3	3	3	3	6	8	9	5.00		
Commission Ratio	5	4	9	9	8	6	5	6.57	7.97	5
Expense Ratio	2	2	3	3	5	7	9	4.43		
Investment Yield Ratio	8	8	9	5	7	10	8	7.86		
Current Ratio	11	11	10	9	9	13	3	9.43		
Liquid Assets to Total Assets Ratio	15	16	10	10	9	11	5	10.86		
Liquid Liabilities to Total Liabilities Ratio	5	5	12	12	15	13	9	10.14		

Table 16. Depiction of Ranks for Kotak-Mahindra Life Based on FSIs Used

Kotak-Mahindra Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	7	7	5	3	4	5	4	5.00		
Solvency Margin Ratio	10	11	4	11	10	6	8	8.57		
Survival Ratio	5	5	4	8	10	12	6	7.14		
Management Expense Ratio	9	9	7	7	8	6	8	7.71		
Commission Ratio	12	7	3	3	4	2	9	5.71	8.23	6
Expense Ratio	10	8	6	5	8	6	7	7.14		
Investment Yield Ratio	4	6	3	6	8	7	15	7.00		
Current Ratio	14	14	14	15	13	11	7	12.57		
Liquid Assets to Total Assets Ratio	13	15	14	13	12	15	14	13.71		
Liquid Liabilities to Total Liabilities Ratio	7	8	13	10	6	5	5	7.71		

Table 17. Depiction of Ranks for Birla Sun Life Based on FSIs Used

BSLI	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	6	6	7	7	8	8	7	7.00		
Solvency Margin Ratio	16	17	12	12	8	11	13	12.71		
Survival Ratio	3	3	3	3	2	2	1	2.43		
Management Expense Ratio	6	8	9	10	9	9	7	8.29		
Commission Ratio	4	5	10	10	12	12	13	9.43	8.34	7
Expense Ratio	5	9	10	9	10	10	8	8.71		
Investment Yield Ratio	1	1	1	14	2	1	17	5.29		
Current Ratio	7	10	13	8	8	8	11	9.29		
Liquid Assets to Total Assets Ratio	16	14	13	9	10	10	12	12.00		
Liquid Liabilities to Total Liabilities Ratio	3	7	10	14	9	8	7	8.29		

Table 18. Depiction of Ranks for Sahara Life Based on FSIs Used

Sahara Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	16	16	16	15	15	15	15	15.43		
Solvency Margin Ratio	2	2	2	4	3	2	3	2.57		
Survival Ratio	11	12	10	6	9	11	13	10.29		
Management Expense Ratio	12	5	6	5	4	3	6	5.86		
Commission Ratio	9	15	17	17	17	13	14	14.57	8.56	8
Expense Ratio	14	6	9	10	6	5	6	8.00		
Investment Yield Ratio	18	18	16	12	18	16	3	14.43		
Current Ratio	2	4	3	3	2	2	2	2.57		
Liquid Assets to Total Assets Ratio	1	3	3	2	3	5	7	3.43		
Liquid Liabilities to Total Liabilities Ratio	16	12	7	13	5	3	3	8.43		

Table 19. Depiction of Ranks for Shriram Life Based on FSIs Used

Shriram Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	14	13	10	9	7	6	8	9.57		
Solvency Margin Ratio	6	3	3	7	4	7	5	5.00		
Survival Ratio	13	14	14	13	8	9	9	11.43		
Management Expense Ratio	17	15	14	9	5	7	3	10.00		
Commission Ratio	10	9	13	13	7	16	16	12.00	9.26	9
Expense Ratio	17	15	14	11	4	8	5	10.57		
Investment Yield Ratio	15	12	2	7	9	9	2	8.00		
Current Ratio	8	7	7	4	4	12	6	6.86		
Liquid Assets to Total Assets Ratio	2	1	1	1	4	6	3	2.57		
Liquid Liabilities to Total Liabilities Ratio	18	17	17	17	16	16	15	16.57		

Table 20. Depiction of Ranks for IDBI Federal Life Based on FSIs Used

IDBI Federal Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	11	14	15	16	16	16	16	14.86		
Solvency Margin Ratio	3	5	5	1	1	3	1	2.71		
Survival Ratio	14	13	13	12	14	6	3	10.71		
Management Expense Ratio	8	10	12	15	15	11	12	11.86		
Commission Ratio	17	18	18	15	15	7	2	13.14	10.00	10
Expense Ratio	8	13	15	15	14	9	11	12.14		
Investment Yield Ratio	12	13	11	17	10	11	10	12.00		
Current Ratio	4	3	5	5	6	4	4	4.43		
Liquid Assets to Total Assets Ratio	3	4	4	5	1	1	1	2.71		
Liquid Liabilities to Total Liabilities Ratio	15	9	15	15	18	18	18	15.43		

Table 21. Depiction of Ranks for AVIVA Life Based on FSIs Used

AVIVA Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	15	15	14	14	14	14	12	14.00		
Solvency Margin Ratio	7	7	7	6	2	1	2	4.57		
Survival Ratio	7	9	11	7	5	4	5	6.86		
Management Expense Ratio	14	11	13	14	13	15	13	13.29		
Commission Ratio	3	2	6	2	3	4	7	3.86		
Expense Ratio	12	11	12	12	11	13	12	11.86	10.03	11
Investment Yield Ratio	16	4	8	3	4	6	1	6.00		
Current Ratio	18	16	17	18	16	9	14	15.43		
Liquid Assets to Total Assets Ratio	18	13	17	17	15	12	15	15.29		
Liquid Liabilities to Total Liabilities Ratio	10	15	11	9	7	6	6	9.14		

Table 22. Depiction of Ranks for TATA-AIA Life Based on FSIs Used

TATA-AIA Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	8	8	8	10	10	10	9	9.00		
Solvency Margin Ratio	5	8	10	13	12	12	11	10.14		
Survival Ratio	4	4	7	10	11	15	16	9.57		
Management Expense Ratio	10	7	8	12	11	14	15	11.00		
Commission Ratio	6	3	1	4	9	9	8	5.71	10.20	12
Expense Ratio	9	5	5	7	12	14	13	9.29		
Investment Yield Ratio	7	9	13	10	15	17	9	11.43		
Current Ratio	16	15	11	14	14	14	13	13.86		
Liquid Assets to Total Assets Ratio	14	17	15	14	11	13	10	13.43		
Liquid Liabilities to Total Liabilities Ratio	9	6	5	7	10	10	13	8.57		

Table 23. Depiction of Ranks for Reliance Life Based on FSIs Used

Reliance Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	13	10	11	11	11	12	13	11.57		
Solvency Margin Ratio	8	6	6	10	17	13	12	10.29		
Survival Ratio	10	7	6	4	4	3	4	5.43		
Management Expense Ratio	15	16	16	13	12	10	14	13.71		
Commission Ratio	13	16	14	12	14	15	15	14.14	11.10	13
Expense Ratio	15	16	16	14	13	11	15	14.29		
Investment Yield Ratio	5	7	7	1	3	3	18	6.29		
Current Ratio	15	18	18	13	10	5	8	12.43		
Liquid Assets to Total Assets Ratio	7	10	16	16	13	9	9	11.43		
Liquid Liabilities to Total Liabilities Ratio	17	18	18	5	4	7	11	11.43		

Table 24. Depiction of Ranks for Max New York Life Based on FSIs Used

MNYL	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	5	5	6	8	9	9	10	7.43		
Solvency Margin Ratio	4	4	15	3	5	4	6	5.86		
Survival Ratio	15	15	15	16	16	16	17	15.71		
Management Expense Ratio	5	6	5	8	14	16	16	10.00		
Commission Ratio	18	17	16	16	16	11	10	14.86	11.26	14
Expense Ratio	7	7	8	13	15	16	16	11.71		
Investment Yield Ratio	11	16	15	11	11	12	11	12.43		
Current Ratio	9	12	15	16	17	10	10	12.71		
Liquid Assets to Total Assets Ratio	8	7	8	7	6	4	8	6.86		
Liquid Liabilities to Total Liabilities Ratio	12	16	16	18	17	14	12	15.00		

Table 25. Depiction of Ranks for PNB MetLife Based on FSIs Used

PNB MetLife	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	9	11	12	12	12	13	14	11.86		
Solvency Margin Ratio	13	14	11	17	16	17	15	14.71		
Survival Ratio	9	8	8	9	7	8	10	8.43		
Management Expense Ratio	11	12	11	11	10	12	10	11.00		
Commission Ratio	11	11	7	5	1	17	18	10.00	11.39	15
Expense Ratio	11	12	11	8	9	15	14	11.43		
Investment Yield Ratio	10	10	10	8	13	14	7	10.29		
Current Ratio	13	9	12	12	15	16	15	13.14		
Liquid Assets to Total Assets Ratio	12	11	12	8	14	14	13	12.00		
Liquid Liabilities to Total Liabilities Ratio	11	11	9	16	8	12	10	11.00		

Table 26. Depiction of Ranks for Exide Life Based on FSIs Used

Exide Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	12	12	13	13	13	11	11	12.14		
Solvency Margin Ratio	12	12	17	15	7	15	16	13.43		
Survival Ratio	17	17	16	15	15	13	14	15.29		
Management Expense Ratio	13	14	15	16	16	13	11	14.00		
Commission Ratio	14	14	11	14	13	5	6	11.00	11.60	16
Expense Ratio	13	14	13	16	16	12	10	13.43		
Investment Yield Ratio	14	15	14	9	14	8	14	12.57		
Current Ratio	5	6	6	7	7	7	5	6.14		
Liquid Assets to Total Assets Ratio	5	6	5	11	8	8	6	7.00		
Liquid Liabilities to Total Liabilities Ratio	8	14	14	6	12	9	14	11.00		

Table 27. Depiction of Ranks for Bharti-AXA Life Based on FSIs Used

Bharti-AXA Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	18	18	18	18	18	18	17	17.86		
Solvency Margin Ratio	15	15	16	14	13	16	17	15.14		
Survival Ratio	12	10	9	11	12	10	7	10.14		
Management Expense Ratio	18	18	18	18	18	18	17	17.86		
Commission Ratio	16	10	4	1	6	14	12	9.00	12.37	17
Expense Ratio	18	18	18	18	18	18	17	17.86		
Investment Yield Ratio	2	2	6	18	6	5	6	6.43		
Current Ratio	10	13	9	11	5	6	9	9.00		
Liquid Assets to Total Assets Ratio	9	12	11	12	7	3	2	8.00		
Liquid Liabilities to Total Liabilities Ratio	14	13	6	11	11	15	17	12.43		

Table 28. Depiction of Ranks for Future Generali Life Based on FSIs Used

Future Generali Life	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	Initial Ranks	Average Rank	Final Rank
Financial Soundness Indicators (FSIs) Used	**Ranks (Performance-wise)**									
Capital to Total Assets Ratio	17	17	17	17	17	17	18	17.14		
Solvency Margin Ratio	11	10	8	8	11	9	4	8.71		
Survival Ratio	16	16	17	17	17	17	11	15.86		
Management Expense Ratio	16	17	17	17	17	17	18	17.00		
Commission Ratio	8	12	15	18	18	18	17	15.14	12.57	18
Expense Ratio	16	17	17	17	17	17	18	17.00		
Investment Yield Ratio	13	14	18	16	16	15	5	13.86		
Current Ratio	6	5	4	6	3	3	12	5.57		
Liquid Assets to Total Assets Ratio	10	8	7	6	2	2	4	5.57		
Liquid Liabilities to Total Liabilities Ratio	6	4	4	8	14	17	16	9.86		

(i) The performance - wise ranking of all the life insurers under review for each FSI has been done for each year based on their relative performances over the study-period.

(ii) The 'Initial Ranks' of a particular life insurer for a particular FSI have been computed by adding up the ranks for all the years and the total so obtained is divided by the number of years as relevant to the present study, that is, 07.

(iii) The 'Average Rank' of an individual life insurer is then calculated, by adding the 'Initial Ranks' obtained by it under each FSI divided by the total number of FSIs as relevant to the present study, that is, 10.

(iv) At the end, the 'Final Ranks' are computed using the value of the 'Average Ranks'. The one with the minimum average rank is given the final rank of one and the next placed insurers were ranked subsequently based on the ascending order of the 'average ranks' as obtained against each of the selected life insurers. In other words, the life insurer with the minimum average rank is placed at the top position followed by the next placed insurers with the rank two, three, and so on.

The Tables 11 – 28 present the ranks assigned to the life insurers under review based on their relative performances covering the period from 2008-09 to 2014-15. Based on the results obtained under Tables 11 – 28, ICICI Prudential Life is found to be the best performer with a lowest average score of 6.66, followed by SBI Life Insurance and LICI with average scores of 7.09 and 7.17, respectively. The final ranks as obtained against the individual life insurers determined their relative performances during the period under review. The results obtained from the present study are also an indicative of the LICI's continued decline in performance since the entry of the private players, and LICI even failed to retain its *numero uno* position in the country's life insurance sector. On the contrary, the performances of the private life insurers are found to be impressive over the time-period. This is reflected in the performances of ICICI Prudential and SBI Life in overpowering the dominance of the state-owned LICI to emerge as the top-two performers in the country's life insurance sector. The private life insurers such as IDBI Federal Life, Bharti-AXA Life, and Future Generali Life depicted gradual signs of improvement in their performances over the years, given their newness in the industry.

Research Implications

The country's life insurance sector experienced a sharp downturn in its total profits and investment returns following the period post 2007-08. This was mainly on account of the U.S. sub-prime crisis that occurred during the year 2007-08 and the ripples of which were felt in the country's insurance sector. In addition, the country's life insurance sector has been experiencing a sharp rise in the footfall of the private players since the year 2000. The abrupt rise in private players has eventually raised concerns about the financial health of the pre-existing and new life insurance players in safeguarding the policyholders' interests as well as timely payment of assured returns to the policyholders. In view of the above situations, the present study has rightly emphasized the need for exploring the financial soundness of the Indian life insurance sector, in the backdrop of the U.S. financial crisis and the insurance sector reforms undertaken in India.

Conclusion

The application of the ratio-based CARAMELS framework has highlighted several unaddressed issues in the financial performances of the public-sector and private-sector life insurance firms in India over the study-period. The present study has further pointed out the contagion effects of the U.S. financial crisis in terms of negative investment yield ratios reported by a majority of the private life insurers during 2008-09. At the same time, the prompt turnaround by the life insurance firms in the subsequent years from such a financial crisis speaks volumes about their financial strength and resistivity. Liquidity was mostly an area of concern for the private life insurance firms over the study-period, in contrast to LICI. The investment-portfolio of the Indian life insurance firms also needs to be reviewed periodically so that the abrupt variation in returns on their investments can be arrested. It is also noteworthy to find the commendable performances of the private life insurers such as ICICI Prudential Life and SBI Life insurance companies during the period under review, in overpowering the dominance of an established player like LICI in such a short time-period. The results obtained in the present study are also in line with the studies previously undertaken by Darzi (2011), Sinha (2012), and Chakraborty and Sengupta (2014). All these studies have pointed out the impressive financial performances of the private life insurers in contrast to the state-owned giant LICI.

Limitations of the Study and the Way Forward

The data collected for the present study were derived from the secondary sources without any emphasis on primary data, and the same has not been adjusted for inflation. Hence, the study incorporates all the limitations that are inherent in published financial statements. In addition, I could not present all the ratios, as mentioned in the CARAMELS framework, for measuring the financial soundness of the Indian life insurance players due to data insufficiency.

Future studies of research in this area could consider the application of the CARAMELS framework covering both the country's life insurance and general insurance sectors for an extended time-period. Future studies can also focus on exploring a relationship between the financial soundness and efficiency scores of the life insurance and general insurance players.

References

Alamelu, K. (2011). Evaluation of financial soundness of life insurance companies in India. *The IUP Journal of Risk & Insurance, 8* (1), 39 - 49.

Ansari, V. A., & Fola, W. (2014). Financial soundness and performance of life insurance companies in India. *International Journal of Research, 1* (8), 224 - 253.

Chakraborty, J. (2016). Market concentration and firm performance: Evidences from the Indian life insurance industry. *Indian Journal of Finance, 10* (9), 30 - 52. DOI: 10.17010/ijf/2016/v10i9/101477

Chakraborty, J., & Sengupta, P. P. (January, 2014). Financial soundness in the Indian insurance sector: A comparison between two leading life insurers. *Paper presented at the International Conference on Business & Information Management (ICBIM-2014)*, Durgapur (India), IEEE Conference Publications. Retrieved from http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6970961

Darzi, T. A. (2011). *Financial performance of insurance industry in post- liberalization era in India* (Ph.D Thesis, University of Kashmir, India). Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/3332/1/01_title.pdf

Das, U.S., Davies, N., & Podpiera, R. (2005). *Financial sector assessment: A handbook (1st ed.)*. USA : World Bank and International Monetary Fund. Retrieved from http://www.imf.org/external/pubs/ft/fsa/eng/pdf/ch02.pdf

Das, U.S., Davies, N., & Podpiera, R. (2003). *Insurance and issues in financial soundness.* IMF Working Paper Series (WP/03/138, July), 1 - 43. Retrieved from https://www.imf.org/external/pubs/ft/wp/2003/wp03138.pdf

Department of Financial Services, Ministry of Finance. (n.d.). *Insurance Rules, 1939.* Retrieved from http://financialservices.gov.in/act-rule/Insurance/Insurance-Rules

Ghimire, R. (2013). Financial efficiency of non-life insurance industries in Nepal. *Lumbini Journal of Business and Economics, 3* (2), 1 - 14.

Hariharan, B. R., Sailaja, V.N., & Patel, K.V. (2017). A study of disclosure on risk management of life insurance companies in India. *Indian Journal of Finance, 11* (1), 29 - 43. DOI: 10.17010/ijf/2017/v11i1/108959

Insurance Regulatory and Development Authority of India. (2007). *Insurance Act, 1938 (as amended by Insurance Amendment Act, 2002).* Retrieved from http://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo107&flag=1

Insurance Regulatory and Development Authority of India. (Various Years). *Annual Reports, 2008 -15.* Retrieved from https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_NoYearList.aspx?DF=AR&mid=11.1

IRDAI. (2000). *Assets, liabilities and solvency margin of insurers regulations, 2000.* Retrieved from https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo58&flag=1

Rani, T., & Shankar, H. (2014). Financial performance of general insurance business in India: A study of select indicators. *Indian Journal of Applied Research, 4* (10), 281-285.

Sinha, A. (2012). *A study on performance of public and private sector life insurance companies in India* (Unpublished Ph.D Thesis). University of Kalyani, West Bengal, India.

Sinha, A. (2013). Financial soundness in Indian life insurance: A comparison between two leading private players. *Indian Journal of Finance, 7* (4), 22-30.

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