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Financial Soundness and Performance of Life Insurance Companies in India

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Abstract

An insurance industry is not only providing the mechanism of saving money and transferring risk but also helps to conduit funds in an appropriate way from surplus economic units to deficit economic units thereby facilitate the investment activities in an economy. To do so the industry should financially solvent, operationally sound and have adequate capital base and alarming risk management system. The objective of this study is to examine the financial soundness and performance of life insurance companies in India, based on a regulatory and supervisory parameters and standards. We employed CARAMEL model; these parameters capture the key operations of life insurers. Typically, the overall financial soundness and performance is a summation of the adequate risk management & sound inbuilt control system, and effective & efficient business underwritings. It has taken seven registered life insurers and examined data of five years from 2008-09 to 2012-13. Statistical test of the CARAMEL model results reveal that; there was a significance difference between capital adequacy, asset quality, management efficiency, earnings & profitability and liquidity position in private and public life insurance companies. This study does not find enough evidence for difference between the ROA and the New Business Premiums (NBP) in private and public life insurance companies. Moreover, the researchers observed strange weaknesses and believes that it's due to the sector has given an excessive attention on marketing divisions to grow premiums without a proportionate earmarking of resources towards the risk management of their investment portfolios.

Keywords:
Life Insurance, Financial Soundness Indicators-CARAMEL, Risk Retention, Survival Ratio, India.

Introduction

Insurance is defined as the equitable transfer of the risk of loss, from one entity to another, in exchange for payment and the payment is called as premium (NCAER). Insurance is a form of risk management which is used to hedge or cover the risk of a contingent and uncertain loss. The insurance sector acts as mobilize of savings, a financial intermediary, a promoter of investment activities, a stabilizer of financial markets and a risk manager in the economy.

According to the Financial Stability Forum, insurance services are categorized into three

major categories: life insurance, non-life insurance and reinsurance. The life insurance sector helps in providing risk cover, investment and tax planning for individuals; the non-life insurance industry provides a risk cover for assets. Under reinsurance, developing countries often find themselves in the position of being buyers of reinsurance (UNCTAD 2007). The development of the life insurance market is playing an increasingly substantial role within the insurance industry due to the existence of insurance-growth relationship with the increased share of the insurance sector in the financial sector (Beck and Webb, 2003).

Life insurance is civilization's partial solution to the problems that caused by death; which eliminates 'risk', substituting certainty for uncertainty and comes to the timely aid of the family in the unfortunate event of death of breadwinner. In short, life insurance is concerned with two hazards that stand across the life-path of every person: firstly, that of dying prematurely is leaving a dependent family to fend for itself, and secondly, that of living till old age without visible means of supports (Source: http://www.licindia.in/).

A well-developed life insurance sector is a boon for economic development as it provides long-term funds for infrastructure development at the same time strengthening the risk taking ability of a country. Life insurers are custodians and managers of substantial investments of individuals; and policyholders need to be confident that their insurer will be able to meet its promised liabilities in the event that claims are made under a policy. Regulatory authorities therefore seek to ensure that the financial soundness and performance of life insurance companies is in sound condition. Insurance is a big opportunity in a country like India with a large population and untapped potential. In this current scenario of growing customer base, one of the principal concerns underlying the regulation of the insurance companies is the need to protect the interest of and secure fair treatment to policyholders (Charumathi, 2011).

Reforms in the insurance sector (Life and General) in India commenced with the setting up of **Malhotra Committee** under the chairmanship of Dr. R.N.Malhotra, the Ex-Governor of RBI, by the GOI in 1993 was formed for examining the structure of insurance industry and to recommend its future direction. The Committee's recommendations was submitted in 1994 which was accepted in principle by the government and started implementing the recommendations since December 1999, thus heralding an era of liberalization in the

country's insurance sector, with the enactment IRDA Act, 1999 and establishment of Insurance Regulatory And Development Authority (IRDA) and opening up of Insurance Business (life and general) for private players with curb to foreign capital up to 26 per cent[1] were the initial steps in this direction. Life Insurance Corporation of India (LIC) was the only company prior to liberalization and the monopoly of LIC breaks with the entry of private companies in life insurance business. Currently, there are fifty-two insurance companies operating in India; of which twenty four are in the life and twenty seven are in the non-life insurance business. In addition, the General Insurance Corporation (GIC) is the sole national reinsurer (IRDA, 2012).

Study reveals that, Insurance sector in India is one of the booming sectors of the economy and unveiled remarkable improvement soon after the Indian economic reform (NER) 1991 is characterized by LPG; growing at the average rate of 35-40 per cent annually with a total insurable population of less than 40 per cent. In the post liberalization period, the life insurance industry also witnessed a remarkable growth and it is being forced to face a lot of healthy competition from many domestic plus international private insurance players (Anshuja and Babita, 2010). Services sector has the largest share in the GDP of the Indian economy (Economic Survey). The Insurance sector contributes 17 per cent to the service sector which has high growth potential. There is a significant untapped potential in various segments of insurance market as the Indian insurance industry is highly protected and underinsured in terms of per capita premium and penetration. The foreign and private players can bridge the gap and have a potential to take the economy to a higher growth trajectory. In the life insurance, public sector is monopolized by the LIC which holds 72.7% market in the total premium and 71.36% market in the first year premium against, only 27.3% and 28.64% market served by the private players in the total premium and first year premium during 2012-13 respectively. In the non-life insurance also the public sector dominates half of the market (58%), while private sector caters 43% of the market.

Review of Literature

The insurance sector is sine-qua-non for development and economic growth of any

[1] Concern has been raised from stakeholder to increase FDI ownership in the sector to 49%.

economy and it has been recognized for many years. The significance of insurance was also acknowledged in the first conference of United Nations Conference on Trade and Development (UNCTAD) in 1964 by stating that "a sound national insurance and reinsurance market is an essential characteristic of economic growth." It seems Insurance not only facilitates economic transactions through risk transfer and indemnification but it also promotes financial intermediation (Ward and Zurbruegg, 2000). More specifically, insurance can have effects such as promote financial stability, mobilize savings, facilitate trade and commerce, enable risk to be managed more efficiently, encourage loss mitigation, foster efficient capital allocation and also can be a substitute for and complement government security programs (Skipper, 2001).

Chaudhary and Kiran (2011) observed current scenario of life insurance industry in light of some changes and regulation of IRDA. By studying different variables the result showed that life insurance industry expanded tremendously from 2000 onwards in terms of number of offices, number of agents, new business policies, products, premium income etc. Gulati and Jain (2011) analyzed business performance of all life insurers in industry on the basis of various indicators. The study indicated that even after the entry of private sector, the growth of public sector undertaking had not resulted in downfall even after facing various opportunities and challenges. Gour and Gupta (2012) determined the solvency ratio of Indian Life insurance companies for the period of 3 years from 2009-10 to 2011-12. It analyzed whether performance of different companies was similar or there was any significant difference. On the basis of solvency ratio, ranks were assigned to different companies which showed that ICICI found the best among selected companies of industry followed by Birla Sun Life, SBI, HDFC and LIC. The paper also observed that solvency of life insures depend on returns received from total investible funds and interest rate. Neelaveni (2012) evaluated the performance of five life insurance companies at the time period of 2002-03 in terms of various plans and policies on the basis of annual growth rate. The study concluded that Life Insurance Corporation being the public sector was lagging behind due to competition faced by private insurers whereas private life insurance companies had performed well in terms of financial aspects. Charumathi (2012) studied the factors that determine the profitability of life insurers operating in India. The sample for the study included 1

public and 22 private players and period of three years i.e. 2008-09 to 2010-11 was studied. For achieving the purpose, regression analysis was performed which resulted that profitability of life insurers was positively affected by size and liquidity but negatively influenced by leverage, premium growth and equity capital. Kumari (2013) analyzed the financial performance of both public and private life insurance industry. For this purpose various parameters such as number of life insurance companies, private sector offices, insurance penetration and density, growth in premium income, size of insurance market were discussed. Financial performance was observed by calculating various financial ratios. The study resulted that there had been a significant increase in the overall business performance of Indian life insurance industry after privatization.

Murthy, R.Babu and Ansari (2009) examined the performance of Life Insurance Corporation. Due to globalization of financial services and liberalization of economy, the Life Insurance Corporation of India (LIC) has been facing intense competition from the new entrants and is also playing a lead role in the life insurance industry. The direct competition from the private players has forced LIC to look for effective marketing strategy with innovative products and better customer services in order to satisfy existing policyholders and policy seekers Creating a win-win situation for both the parties and healthier competition has to be intensified by both the sectors, to increase insurance-density and penetration levels in order to fulfill customer needs and reach their expectations of the Indian insurance market.

Research Objectives

The present study made an attempt to examine the financial soundness and performance of the life insurance companies in Indian insurance industry. The specific objectives are:

- To evaluate the financial soundness and performance of life insurers in India on the basis CARAMEL Model parameters.
- To make comparative statistical analysis of the financial soundness and performance for the public and private life insurance companies.
- To scan the insurance regulatory and supervisory benchmarks in light of CARAMEL parameters.

Research Methodology

We employed a CARAMEL model in this study to examine the financial soundness and

performances of life insurance companies in India. In addition to a ratio analysis of the model, the CARAMEL parameters were statistically tested with the help of statistical tools, viz., Independent Samples T-test or/and Mann-Whitney test. It has taken seven registered life insurance companies[2] in India through employing purposive sampling so as to include majority which represents more than 87.8 per cent of market share in the total life insurance business premiums during 2012-13. The study span is of five financial years from 2008-09 to 2012-13 respectively.

Both primary and secondary data sources were used for this study. The collection of primary data has been done through consultation of industry experts and field visits. The required secondary data were drawn from relevant earlier studies, public disclosures and annual reports of the respective insurance companies, regulatory authorities and Insurance Information Bureau (IIB) which is working as comprehensive database for all insurance companies.

The paper is primarily base on quantitative research. For the purpose, we organized the life insurance companies into peer (i.e. all private life insurers under review) and industry (private plus LIC) then computed and compiled the peer and industry average to strengthen and an attempt to made a accurate representative picture and insights of the sector, based on, comparison of private and public sector insurers soundness and performance was examined. Thus firstly, evaluation of the financial soundness and performances based on the CARAMEL framework, had proposed by Das, Davies and Podpiera (2003)[3] later duly was endorsed by IMF for adoption of regulatory and supervisory body as an individual parameters. This framework is analogous to the CAMEL framework for the banking sector. Besides, finally the CARAMEL components (See Table-1 below) were statistically tested. Capital adequacy, asset quality, reinsurance & actuarial issues, management soundness, earnings & profitability, and liquidity were selected to be included as explanatory variables in this study.

[2] Currently, one public (i.e. LIC) and 23 private life insurers are operating in India.

[3] Das, Davies, and Podpiera (2003) were propose a set of core and encouraged soundness indicators for the insurance industry (grouped separately for life and non–life insurance).

Table-1: Financial Soundness Indicators for Life Insurers'

CARAMEL Component	Variable chosen for the study	
	Core Set	**Encouraged Set**
Capital Adequacy(C)	Capital to Total Assets Capital to Technical Reserves	Solvency Ratio
Asset Quality (A)	Provisions for NPAs to Total gross loans	
Reinsurance and Actuarial Issues (RA)	Net Premium to Gross Premium Net Technical Reserves/Average of Net premium received in last three years	
Management Efficiency (M)	First Year Premium/ Gross Premiums	Operating Expenses/Gross Premiums
Earnings (E)	Operating Expenses to Net Premium Net Profits to Equity	Net Profits to Assets (ROA)
Liquidity/Liquidity Analysis (L):	Current Assets to Current Liabilities	Liquid Assets/Current Liability Liquid liabilities/Total Liabilities

Note: *Compiled from IMF Working Paper on 'Insurance and Issues in Financial Soundness, WP/03/138 (2003).*

Measuring Financial Soundness and Performance

In the recent past, the Indian insurance market has undergone major structural changes. The government monopoly was dissolved and private companies were permitted to operate and intermediaries suddenly had a significant role to play. Following, the economic reforms in 1991 was characterized by Liberalization, Privatization and Globalization (LPG); India witnessed joint ventures in the life insurance industry with foreign companies bringing a maximum limit of 26 per cent[4] capital as stipulated by the authority. Consequently, the importance of the industry for financial soundness and solidity has increased because of intensified links between insurers and banks, thereby increasing the risk of contagion; following financial deregulations. Moreover, the deregulation has increased their exposure to equities and risk complex asset management products, thus exposing them to additional risk by making their liabilities more liquid. Hence, the sector healthiness should be scrutinized to ensure dependable services to its stakeholders and support growth and development of the economy as a whole, to do so the industry should financially solvent, operationally sound and have adequate capital base & alarming risk management system. Therefore, the present study made an attempt to test empirically the sector's soundness and performance; we employed the financial soundness indicators commonly used by a

[4] Interest has been raised from stakeholders to increase the ownership of FDI in the sector to 49%

regulatory and supervisory body as individual parameters, viz. CARAMEL model. Thus first the life insurer's financial soundness and performance has been evaluated using the model then its components statistically tested for the life insurers (See following discussion).

Capital Adequacy

Capital is considered as a buffer to protect insured and promote the soundness of financial system, it also indicates whether the insurer has enough capital to absorb losses arising from claims. Then the 'Capital Adequacy Ratio' is the key indicator of an insurer's financial soundness position and prudential levels that's why it's the key focus area of insurance supervision. However, unfortunately there is no internationally accepted threshold for capital adequacy ratio for insurance companies but banking industry has a minimum 8[5] per cent of 'capital to risk weighted asset ratio' yet countries' usually set their own yardsticks considering its financial system level and development. Although insurance regulator has not set any norm to maintain the minimum capital adequacy ratio as RBI has acknowledged international standard in banking sector, instead IRDA has asked insurance companies to maintain solvency margin[6] of 1.5 i.e. excess of assets over liabilities, monitored on quarterly basis, moreover IRDA issues registration to those companies only having capital of minimum of Rupees one billion. Table-2 herein below highlights the capital adequacy ratio analysis of the public & private sector life insurers.

Table-2: Capital Adequacy Indicators

Name of the Insurer			2008/09	2009/10	2010/11	2011/12	2012/13
Public Sector							
1	LIC	Solvency Ratio	1.54	1.54	1.54	1.54	1.54
		Capital to Total Assets	0.0004	0.0003	0.0003	0.0004	0.0003
		Capital to Reserves	1.0151	1.0139	1.0220	1.2419	1.2647
Private Sector							
2	SBI Life	Solvency Ratio	2.92	2.17	2.04	2.11	2.15
		Capital to Total Assets	0.0713	0.0450	0.0412	0.0459	0.0518
		Capital to Reserves	0.0000	4.9642	2.6234	1.9265	1.6103
3	ICICI Prudential	Solvency Ratio	2.31	2.90	3.27	3.71	3.96

[5] Continuously updating by Basel Committee and disseminated its series paper but general fall between 8 to 12%.

[6] Solvency Margin: Life insurers are required to maintain a minimum ratio of 1.5(not less than) a required solvency margin (an excess of the value of assets over the amount of liabilities) as per section 64VA of insurance Act, 1938.

		Capital to Total Assets	0.1306	0.0794	0.0683	0.0689	0.0690
		Capital to Reserves	1.4260	1.4250	1.4270	1.4139	1.4043
4	HDFC Standard	Solvency Ratio	2.58	1.80	1.72	1.88	2.17
		Capital to Total Assets	0.1574	0.0945	0.0783	0.0657	0.0537
		Capital to Reserves	33.3397	36.9277	10.0395	10.0382	10.0330
5	Bajaj Allianz	Solvency Ratio	2.62	2.68	3.66	5.15	6.34
		Capital to Total Assets	0.0689	0.0366	0.0573	0.0903	0.1264
		Capital to Reserves	1.1422	1.1422	1.0718	1.0442	1.0316
6	Birla SunLife	Solvency Ratio	2.44	2.11	2.89	2.99	2.67
		Capital to Total Assets	0.1864	0.1353	0.1143	0.1093	0.1035
		Capital to Reserves	16.6627	5.1032	5.1031	5.1031	4.7831
7	Bharti AXA	Solvency Ratio	2.07	1.68	2.14	2.34	1.82
		Capital to Total Assets	0.7969	0.6101	0.5481	0.5248	0.5035
		Capital to Reserves	9.5601	7.5112	9.5186	10.2407	10.3851
Solvency Ratio		Peer Average	2.49	2.22	2.62	3.03	3.19
		Industry Average	2.35	2.13	2.47	2.82	2.95
Capital to Total Assets		Peer Average	0.2353	0.1668	0.1513	0.1508	0.1513
		Industry Average	0.2017	0.1430	0.1297	0.1293	0.1297
Capital to Reserves		Peer Average	10.3551	9.5123	4.9639	4.9611	4.8746
		Industry Average	9.0208	8.2982	4.4008	4.4298	4.3589

Note: Compiled by the researcher from the various Annual Reports of IRDA & respective Insurers.

The solvency margin of an insurance company is the size of its capital relative to all risks it has taken; thereby measures of the risk an insurer faces of claims that it cannot absorb. The solvency ratio is most often defined as: net assets to net premium written. Different countries use different methodologies to calculate the solvency ratio, and have different requirements. In India context, insurers are required to maintain a minimum ratio of 1.5(not less than) a required solvency margin (an excess of the value of assets over the amount of liabilities) as per section 64VA of insurance Act, 1938[7]. The solvency margin breakdown, witnessed steady increasing trend for all private sector life insurers by and large for the last five consecutive financial years from 2008/09 to 2012/13, respectively as is depicted in the Table-2. Particularly, the Bajaj Allianz (2.62, 2.68, 3.66, 5.15 & 6.34) and ICICI Prudential (2.31, 2.90, 3.27, 3.71 & 3.96) have been witnessed increasing trend that ranges from 2.31 to 6.34 while the rest life insurers have been revealed slight down & up trend during the study period, yet

[7] Thus IRDA interpretation to the "Solvency Ratio" means the ratio of the amount of Available Solvency Margin to the amount of Required Solvency Margin. 'Available Solvency Margin' means the excess of value of assets over the value of life insurance liabilities and other liabilities of policyholders' fund and shareholders' funds as per Regulations, 2000.

well maintained above the minimum statutory requirements though below both the peer and industry averages. However, the state-owned giant LIC just managed its fate at nearly the minimum statutory requirements; the ratio was remained at 1.54 for last five consecutive years; even though it's slight higher than the minimum statutory requirements ratio of 1.5, it remains far below the peer average of (2.49**,** 2.22, 2.62, 3.03 & 3.19) and sector average of (2.35, 2.13, 2.47, 2.82 & 2.95) during the study period.

Besides, all private and public life insurers were abide by the regulatory minimum and target required capital, viz., Rs.1 billion during the study period, given the LIC injected fresh capital of Rs. 950 million in 2011-12. Furthermore, the analysis clearly indicates that private sector insurance companies have been able to maintain capital and infused more capital over the period of time, which might have enabled them to maintain above the required solvency margin, thereby unveiled strong capital base. However, the giant LIC relatively revealed poor capital position as per the two gauges viz., solvency ratio and total capital[8] during the study period even considering its fresh capital infusion. In general, the life insurance business was supported by the fair amount of capital, however, the sluggish position witnessed by LIC indicated as it seems to comply with regulatory requirements. Yet, this needs further analysis.

The 2nd ratio in the above Table-2, Capital per Total Assets analysis, the ratio indicates the proportion of capital in the total assets portfolio of the companies, growth in the assets of the business and how efficiently the capital has been invested to create assets. Lower ratio may be preferred to higher one, as higher ratio indicates high reliance on capital & inefficient use of capital to create assets where as lower ratio indicates the greater assets base of the company. The companies under study have quite satisfactory ratio, except with some fluctuations, the ratio for SBI ranged between 0.045, 0.041, 0.046 & 0.0518 (from 2010 to 2013) and Bajaj Allianz, revealed some downward trend from 0.037, 0.057 0.09 to 0.1264 given its 2nd[9] largest capital base in the sector studied during 2012/13. The analysis reveals that the assets base of the sector has been increasing over the period of time. Further, the study reveals that the India

[8] Total capital of LIC is lowest in the sector was stood at Rs. 5.2 billion in 2012/13 (whereas ICICI Rs. 51.3, Baja Rs. 48.4, SBI-Rs. 27.1, Birla-RS. 24.9, HDFC-Rs. 22, and Bharti AXA Rs. 20; Rupees in billions same period).

[9] The Bajaj Allianz total capital Rs. 48.4 billion next to the ICICI Prudential of Rs. 51.3 billion in 2012/13.

life insurer's capital levels in relation to assets are relatively smaller this indicates efficient utilization of capital employed to create dependable assets base. This can be evidenced by the peer and industry average improvements i.e. (0.2353, 0.1668, 0.1513, 0.1508 & 0.1513) and (0.2017, 0.1430, 0.1297, 0.1293 & 0.1297), respectively; give sluggish forward.

In Similar passion, capital to reserves ratio, has been witnessed that fairly improving position of reserves and surplus of life insurers' from year-on-year (YOY) basis during the study period, can be evidenced by the peer and industry averages improvements (See Table-2 above).

Asset Quality

Life insurers' risks mainly stems from the asset side of the balance sheet, primarily the asset quality deteriorates due to problems in real estate investment businesses, exposure to volatile but high yield from security markets, and weak loans and advances administration-rewards high NPAs ratio. Therefore, asset quality is one of the most critical areas in determining the overall financial soundness of an insurance company. The asset quality indicators are (Real estate + unquoted equities + debtors)/total assets, Receivables/(Gross premium + reinsurance recoveries), Equities/total assets and NPLs to total gross loans (IMF-WP, July 2003). However, given the Indian scenario, the insurers are not allowed to invest in stock markets[10] and neither are the companies listed (Tanveer, 2010); as a result unquoted equities could not be computed for the purpose. The indicator here shall reflect the quality of assets base on comparison to provisions hold for non-performing assets, which is reflected in the Table-3.

[10] Recently IRDA has opened stock market for the insurance sector to those served more than 10 years in the market.

Table-3: Asset Quality Indicators

Name of the Insurer			2008/09	2009/10	2010/11	2011/12	2012/13
Public Sector							
1	LIC	Prov.of NPLAs/TA*	.0189	.0143	.0125	.0118	.0006
Private Sector							
2	SBI Life	Prov.of NPLAs/TA	.0007	.0002	.0003	.0015	.0000
3	ICICI Prudential	Prov.of NPLAs/TA	.0033	.0005	.0001	.0018	.0001
4	HDFC Standard	Prov.of NPLAs/TA	.0018	.0009	.0005	.0004	.0000
5	Bajaj Allianz	Prov.of NPLAs/TA	.0024	.0020	.0027	.0035	.0000
6	Birla SunLife	Prov.of NPLAs/TA	.0024	.0018	.0022	.0024	.0000
7	Bharti AXA	Prov.of NPLAs/TA	.0032	.0018	.0020	.0017	.0001
Prov.of NPLAs/TA		Peer Average	0.0023	0.0012	0.0013	0.0019	3E-05
		Industry Average	0.0047	0.0031	0.0029	0.0033	1E-04

Note: Compiled by the researcher from the various Annual Reports of IRDA & respective Insurers.
***NPAs-Nonperforming Assets, TA**-Total Assets , **Prov.**-Provisions*

Lower ratio may be preferred to higher one, considering that higher ratio indicates large amount of provisions hold for the large amount of NPAs in the total gross assts. As the foregoing table depicts, the asset quality of life insurers has been pretty sound during the study period, as a result, of are prohibited to extend credit to their customers and from investing in stock markets and neither are the companies listed.

The NPLs (Non-performing Loans) to total gross loans is the most widely used indicator of loan quality in the financial institutions i.e. banking, insurance, microfinance and others since it's the major part of balance sheet in turn gauges the assets quality of the institutions. This asset class has been one of the key problems in insurance failure in some countries[11]. However, in Indian scenario the asset quality of insurers' controlled by the so called 'tiger regulations' issued by the authority (IRDA); so life insurers reported nil proportion of NPLs in their total assets during the study period.

Reinsurance and Actuarial Issues

The risk hedging strategy in an insurance industry has been indicated by prudent management of the reinsurance and actuarial issues that primarily gauged by employing two ratios i.e. Risk Retention Ratio and

[11] Like Japan (during 1997 to 2001 seven life insurers failed as a consequence of high NPLs), Korea (13 life and 3 non-life insurers failed during 1998 to 2002 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 partially real estate market and liquidity problem, in 1994), Ethiopia (Universal Insurance-General, in 1997 the case is still in court) (source: IMF-WP, July 2003).

Survival Ratio. The risk retention ratio reflects the overall underwriting strategy of the insurer and depicts what proportion of risk is passed onto the reinsurers. Overall, insurer's capital and reinsurance cover need to be capable of covering a possible severe risk scenario. If the insurer relies on reinsurance to a substantial degree, it is critical that the financial condition of its reinsurers is examined. At the industry level, this ratio indicates the risk bearing capacity of the country's insurance sector; however, some international comparison needs to be taken into account wherein some countries impose a cap to reinsure a pre-determined percentage of business with a state-owned reinsurance company, (Das et al., July 2003). In Indian scenario, the authority (IRDA) has framed the regulations pertaining to reinsurance for both life and non-life insurers in line with the IRDA Act, 1999 and Insurance Act, 1938, which lay down the ground rules to placing reinsurance. Accordingly, every life insurer shall draw up a programme of reinsurance in respect of lives covered by him, submit the same and seek approval from the authority, at least forty five days before the commencement of each financial year; given a compulsory minimum of 20 per cent (industry source)[12].

The 1st ratio in the table-4 below, risk retention ratio, indicates that the life insurance sector retained the risk at their own destiny, can be witnessed by the peer and industry average ratio is ranged approximately 98.81–99.52 per cent, given that they do not rely considerably on reinsurance as non-life insurers do. Hence, insignificant gap is seen between Gross Written Premium (GWP) and Net Premium which indicates the risk passed onto the reinsurers is negligible. In other words, the life insurers passed on to reinsurance only 1.19 per cent of the total direct premium. From the above discussion, we can said that the life insurers preferred retaining risk at their own destiny to passing the risk onto the reinsurers so as to boost up their profits by reducing the transaction costs and sharing of premium income with reinsurers, during the study period.

[12] Regarding to the non-life insurance companies, are also required to reinsure 20 per cent of their business prior to de-tariffication and 10 per cent of the risk after de-tariffication, take note that it would be updating from time to time by the authority in consultation with the Insurance Advisory Committee (IAC).

Table-4: Reinsurance and Actuarial Issues Indicators

Name of the Insurer			2008/09	2009/10	2010/11	2011/12	2012/13
Public Sector							
1	LIC	Risk Retention Ratio*	0.9994	0.9995	0.9994	0.9996	0.9990
		Survival Ratio**	0.0023	0.0022	0.0022	0.0022	0.0020
Private Sector							
2	SBI Life	Risk Retention Ratio	0.9987	0.9977	0.9972	0.9960	0.9935
		Survival Ratio	0.0000	0.0334	0.0617	0.0931	0.1388
3	ICICI Prudential	Risk Retention Ratio	0.9975	0.9968	0.9964	0.9933	0.9911
		Survival Ratio	0.2737	0.2223	0.2032	0.2179	0.2426
4	HDFC Standard	Risk Retention Ratio	0.9917	0.9929	0.9945	0.9949	0.9943
		Survival Ratio	0.0126	0.0096	0.0309	0.0253	0.0217
5	Bajaj Allianz	Risk Retention Ratio	0.9978	0.9975	0.9964	0.9933	0.9916
		Survival Ratio	0.1240	0.1003	0.1994	0.3602	0.5908
6	Birla SunLife	Risk Retention Ratio	0.9879	0.9854	0.9855	0.9766	0.9685
		Survival Ratio	0.0380	0.1094	0.0927	0.0859	0.0953
7	Bharti AXA	Risk Retention Ratio	0.9974	0.9966	0.9942	0.9926	0.9897
		Survival Ratio	0.5536	0.4558	0.2965	0.2510	0.2518
Risk Retention Ratio		**Peer Average**	**0.9952**	**0.9945**	**0.9940**	**0.9911**	**0.9881**
		Industry Average	**0.9958**	**0.9952**	**0.9948**	**0.9923**	**0.9897**
Survival Ratio		**Peer Average**	**0.1670**	**0.1551**	**0.1474**	**0.1722**	**0.2235**
		Industry Average	**0.1435**	**0.1333**	**0.1267**	**0.1479**	**0.1919**

Note: Compiled by the researcher from the various Annual Reports of IRDA & respective Insurers.
*****Net Premiums to Gross Premiums. ******Net Technical Reserves to Average of Net Premium Received in last three years.

The 2nd ratio in the table-4, the adequacy of technical reserves also called as survival ratio (Net Technical Reserves to Average of Net Premium Received in last three years). In general, the adequacy of technical reserves should increase in step with the volume of long term business taken on, from shifts in business composition. The fairly high ratio reflects better technical reserves compared to the average net premium received in last three years, highlighting the financial soundness and dependability of an insurance company. The analysis reveals that some of the companies were better in holding the marginally higher reserves relatively to average net premiums received in last recent three years. Particularly, by and large the private sector revealed higher ratio compared to the state-owned giant LIC, holds so insignificant ratio throughout five consecutive study period that stood at 0.0022 (i.e. 0.22 percent) against its high volume business taken and long time presence in the market witnessed poor position in the sector. The Bajaj Allianz, Bharti AXA, and ICICI Prudential were takes the better position in the sector during 2012/13, the ratio ranged 0.5908, 0.2518 and 0.2426 respectively.

However, the Birla SunLife, SBI Life and Bharti AXA witnessed continuous fluctuating and decreasing trend throughout the study period, yet the second position was at the Bharti AXA in the industry given newness in the market.

Management Soundness

Sound operations management of financial institutions is crucial for financial performance, soundness and solidity in the industry. It is very difficult; however, to find any direct quantitative gauge of management soundness. However, IMF proposed the use of two indicators of operational efficiency because the efficiency of operations is likely to be correlated with general management soundness. The two ratios are operating expenses to gross premiums and personnel expenses to gross premiums are considered as indirect indications of management soundness. Gross premiums are used because they are a reflection of the overall volume of business activity. Table-5 depicts management efficiency ratio analysis of the life insurers' under review.

Table-5: Management Soundness Indicators

Name of the Insurer			**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**
Public Sector							
1	LIC	Operation Efficiency Ratio*	.0576	0.0658	0.0835	0.0735	.0800
		First Year Premiums Ratio**	.3381	.3844	.4276	.4035	.3669
Private Sector							
2	SBI Life	Operation Efficiency Ratio	.0860	.0654	.0708	.0780	.1101
		First Year Premiums Ratio	.7469	.6968	.5863	.4973	.4960
3	ICICI Prudential	Operation Efficiency Ratio	.1785	.1554	.1223	.1432	.1506
		First Year Premiums Ratio	.4436	.3831	.4397	.3167	.3552
4	HDFC Standard	Operation Efficiency Ratio	.3163	.2154	.1661	.1244	.1187
		First Year Premiums Ratio	.4764	.4650	.4508	.3758	.3918
5	Bajaj Allianz	Operation Efficiency Ratio	.1766	.1551	.1672	.1879	.2322
		First Year Premiums Ratio	.4227	.3898	.3606	.3631	.4335
6	Birla SunLife	Operation Efficiency Ratio	.2731	.2410	.2120	.2065	.2223
		First Year Premiums Ratio	.6170	.5376	.3664	.3273	.3521
7	Bharti AXA	Operation Efficiency Ratio	1.5701	.9862	.7595	.5824	.5758
		First Year Premiums Ratio	.8128	.6531	.4391	.2901	.3343
Operation Efficiency Ratio		Peer Average	0.4334	0.3031	0.2497	0.2204	0.2350
		Industry Average	0.3797	0.2692	0.2259	0.1994	0.2128
First Year Premiums Ratio		Peer Average	0.5866	0.5209	0.4405	0.3617	0.3938
		Industry Average	0.5511	0.5014	0.4386	0.3677	0.3900

Note: Compiled by the researcher from the various Annual Reports of IRDA & respective Insurers.
* Operating Expenses Related to Insurance Business to Gross Written Premiums (GWP).
** First Year Premium (Single and Regular Premium) to Gross Written Premiums (GWP).

The foregoing analysis of operation efficiency ratio, indicates that the Bharti AXA, HDFC Standard and Birla SunLife have recoded steady improvement by continuously decreasing Operating Expenses to Gross Written Premiums (GWP) during the study period, ratio was stood at (1.5701, 0.9862, 0.7595, 0.5824 & 0.5758), (0.3163, 0.2154, 0.1661, 0.1244 & 0.1187), and (0.2731, 0.2410, 0.2120, 0.2065 & 0.2223) respectively encouraging trend. Yet the Bharti AXA's operating expenses per gross written premiums was highest in the sector during the study period indicates as it pitches less market with inflated expenses, given its newness in the industry, commenced operation in 2006. Moreover, the Bajaj Allianz (0.1766, 0.1551, 0.1672, 0.1879 & 0.2322) and SBI Life (0.0860, 0.0654, 0.0708, 0.0780 & 0.1101) have witnessed continuously increasing expenses to their business operations volume during the study period while the ICICI Prudential and the LIC have also recorded fluctuating expenses to their business operations volume. The peer and industry average trend ratio indicate that in general the operation expenses decreasing from year on year (YOY) basis, given still the highest.

The 2nd ratio analysis, First Year Premiums Ratio (Single Premium plus Regular Premium) to GWP, unfortunately unveils that the life insurance sector as a whole recorded surge deteriorating performance throughout the study period except the sluggish improvement in 2012/13 as depicted in Table-5; this can be evidenced from their peer and industry averages were stood at (0.5866, 0.5209, 0.4405, 0.3617 & 0.3938) and (0.5511, 0.5014, 0.4386, 0.3677 & 0.3900), respectively. When we looked into at breakdown of the sector, the Bharti AXA (0.8128, 0.65310, 0.4391, 0.2901, & 0.3343), the Birla SunLife (0.6170, 0.5376, 0.3664, 0.3273 & 0.3521), the HDFC Standard (0.4764, 0.4650, 0.4508, 0.3758 & 0.3918), and the SBI Life (0.7469, 0.6968, 0.5863, 0.4973 & 0.4960) witnessed continuously decreasing trend yet SBI Life[13] holds the first position in the sector by recording good business performance whereas the LIC (0.3381, 0.3844, 0.4276, 0.4035 & 0.3669), the ICICI Prudential (0.4436, 0.3831, 0.4397, 0.3167 & 0.3552) and the Bajaj Allianz (0.4227, 0.3898, 0.3606, 0.3631 & 0.4335)

[13] Generally, the evaluation made herein above shows a controversy that the First Year Business Premiums constantly decreasing whereas the operating expenses related to insurance business per the Gross Written Premium (GWP) steady increasing during the study period particularly for the SBI Life.

showed surging up and down business performance during the study period.

Earnings and Profitability

Earnings are one of the key sources of inbuilt long term capital base for an insurance company. Low profitability may signal fundamental problems of the insurer and may consider a leading indicator for solvency problems. Therefore, considerable attention has given to this area so that the most important indicators of earnings and profitability are included in this study for life insurers' under review. Thus these are the Expense Ratio, ROE, and ROA. The Expense Ratio is measured as the ratio of underwriting or operating expenses to net premium, underwriting expenses are the costs of obtaining new policies/businesses from insurance carriers which technically includes all expenses other than claims, the lower the expense ratio the better because it means more profits to the insurance company. The ROE (return on equity) is measured as the ratio of net profit to equity and the figure shows that the net profits that are returned to shareholders, higher the return on equity, the more profitable the insurer has become and the possibility of enhanced dividends to shareholders. The ROA (return on assets) is measured as the ratio of net profit on assets; we included this ratio proxy to investment ratio as an indicator of the effectiveness of their investment policies by and large since Life Insurance Company has been functioning to a large extent as asset managers.

The 1st ratio in the table-6 below, Return on Equity, since the ROE is the reward for investors, the ratio shall be increasing from year to year (Y-o-Y) as the owners expecting better return in a every subsequent financial year. Take a brief look at the analysis of ROE presented in Table-6 indicates that all life insurers witnessed increasing trend from time to time apart from the LIC, has declined sharply the ratio was stood at 13.13 and 14.38 during 2012 and 2013 due to fresh capital injection of Rs. 950 million (capital before injection was only Rupees 50 million). Even though, the ratio was lower against three previous financial years, it remains above the peer average of 0.49 and sector average of 2.48 in 2013. The Bharti AXA[14] recorded loss throughout the study period but has encouragingly been enhancing the

[14] Experts argue that insurance companies particularly life insurers are typically take five to seven consecutive years to be profitable while record losses.

performance and improving the ratio from Y-o-Y ranged -0.6245, -0.4227, -0.2297, -0.1105 & -0.0660 respectively, due to its newness in the industry.

Table-6: Earnings and Profitability Indicators

Name of the Insurer			2008/09	2009/10	2010/11	2011/12	2012/13
Public Sector							
1	LIC	ROE*	191.47	212.14	234.36	13.13	14.38
		ROA**	.0011	.0009	.0009	.0010	.0009
		Expense Ratio***	.0577	.0658	.0835	.0735	.0801
Private Sector							
2	SBI Life	ROE	-.0263	.2765	.3663	.5558	.6222
		ROA	-.0019	.0098	.0093	.0118	.0119
		Expense Ratio	.0862	.0656	.0710	.0783	.1109
3	ICICI Prudential	ROE	-.5463	.1806	.5654	.9687	1.0469
		ROA	-.0213	.0043	.0115	.0193	.0201
		Expense Ratio	.1789	.1559	.1228	.1441	.1519
4	HDFC Standard	ROE	-.2801	-.1398	-.0496	.1359	.2263
		ROA	-.0429	-.0127	-.0035	.0081	.0110
		Expense Ratio	.3189	.2170	.1670	.1251	.1194
5	Bajaj Allianz	ROE	-.4690	.3598	.7013	.8700	.8530
		ROA	-.0040	.0164	.0269	.0332	.0335
		Expense Ratio	.1769	.1555	.1678	.1892	.2341
6	Birla SunLife	ROE	-.3736	-.2211	.1549	.2339	.2749
		ROA	-.0655	-.0241	.0142	.0206	.0225
		Expense Ratio	.2765	.2445	.2151	.2114	.2296
7	Bharti AXA	ROE	-.6245	-0.4227	-0.2297	-0.1105	-.0660
		ROA	-.3885	-0.2232	-0.1125	-0.0523	-.0301
		Expense Ratio	1.5741	0.9896	0.7639	0.5867	.5818
ROE		Peer Average	-0.3866	0.0055	0.2514	0.4423	0.4929
		Industry Average	27.0215	30.3110	33.6955	2.2553	2.4762
ROA		Peer Average	-0.0874	-0.0383	-0.0090	0.0068	0.0115
		Industry Average	-0.0747	-0.0327	-0.0076	0.0060	0.0100
Expense Ratio		Peer Average	0.4353	0.3047	0.2513	0.2225	0.2380
		Industry Average	0.3813	0.2706	0.2273	0.2012	0.2154

Note: Compiled by the researcher from the various Annual Reports of IRDA, respective Insurers, & Swiss Re.
* Return on Equity (Net profit per Equity). **Return on Assets (Net profit per Assets)
*** Underwriting Expenses to Net Written Premiums.

The 2nd ratio presented in Table-6 represents the return on assets (ROA) proxy to investment income ratio (investment income per investment assets) of the life insurers under review. The ROA analysis vehemently supports the evaluation made herein above

under ROE thus all life insurers under review recorded satisfactory performance of the net income to total assets. Moreover, the Bajaj Allianz flag its banner on the top in the sector by recording a high performance the ratio was stood at 0.0335 (i.e. 3.35 per cent) above both the peer average of 0.0115 and industry average of 0.0100, followed by the Birla SunLife stood at 0.0225 (i.e. 2.25 per cent) and the ICICI Prudential stood at 0.0201 (i.e. 2.01 per cent) during 2012/13.

The 3rd ratio presented in Table-6 represents Expenses ratio (underwriting expenses to net written premium) of the life insurers under review. Expenses ratio in insurance jargon is the portion of premium used to pay all the costs of acquiring, writing and servicing insurance and reinsurance. Both the peer average (i.e. ratio stood at 0.4353, 0.3047, 0.2513, 0.2225 & 0.2380) and industry average (i.e. ratio stood at 0.3813, 0.2706, 0.2273, 0.2012 & 0.2154) clearly indicate that the life insurance companies under review have been witnessed decreasing trend of operating expenses to net written premium throughout the study period, except a sluggish inflated in 2013, which believed to be a good gesture for improving financial soundness and profitability of the sector. Thus, therefore, we can concluded that, the life insurers earnings and profitability have been steady improving from Y-o-Y during the study period as evidenced by the peer and industry average were positively surging in respect to the three ratios viz. ROE, ROA and Expense ratio, given that the sector was recorded negative ROA for three consecutive financial years, viz., -0.0747, -0.0327 and -0.0076 in 2008-09, 2009-10 and 2010-11 respectively.

Liquidity Risks

Liquidity is the sixth and last component of the CARAMEL framework for life insurers but not the least even if their liquidity of liabilities is relatively predictable backed through their long-term obligations. Also industry sources suggest that for life insurer's liquidity is usually a less pressing problem at least as compared to non-life insurers and banks. S.Das et al., (2003) on their working paper for IMF, stated that the link between illiquidity and insolvency, through the loss of confidence and runs, is less marked in insurance. Further, Ahmed et al., (2011) in his study of the Pakistani life insurance claimed that liquidity is not a significant determinant of insurers' profitability. However, the liquidity problem may call upon a loss of confidence on an insurer, causes policyholders to cancel over, demand

a return of unexpired premium, and fresh capital injection to lessen the liability shocks. This is particularly important for life insurers, as we have mentioned herein above in our discussion under 'Asset Quality Analysis', failure episodes experienced by other countries. Therefore, the insurers need to plan their liquidity carefully since the frequency, severity and timing of insurance claims or benefits are uncertain. Theoretically, the rule of thumb for liquidity is above 1:1 ratio; however, the limit differs from country to country because a regulatory body stipulates internal requirement based on its financial industry structure and system but usually fall between 1.5 and 2.5. For the purpose this study, we employed three important liquidity indicators these are ratio of liquid assets to liquid liabilities, liquid assets to total assets and liquid liabilities to total liabilities, reflect satisfying ability of short-term obligations and financial assets proportion in the total assets base. Table-7 below presents the Liquidity risks analysis of the life insurance companies under study.

The 1st ratio presented in Table-7 represents the Current Ratio. Overall, both the peer and industry averages indicate that the life insurer's ability to meet the short-term obligations is steady improving year on year basis during the study period, given that their inherently long-term obligations. However, when we looked at the breakdown of individual insurers, by and large the private sector insurers stood at unsatisfactory position to cover potentially extreme loss events taking into consideration their high Risk Retention Ratio (RRR) as the discussion made herein above under 'Reinsurance and Actuarial Issues Analysis' and also lessons from the unfortunate events like as tsunami in Japan in the most recent past time, in this regards it calls for sound Liquidity Contingency Plan (LCP) is paramount solution for unfortunate situations. Particularly, ICICI Prudential, HDFC Standard, and Birla SunLife were recorded the current ratio below the rule of thumb, that is, at least 1:1 ratio, during the study period.

The 2nd ratio, liquid assets to total assets reflects the financial assets position in the total assets of an insurer. The ratio analysis, to some extent supports the previous discussion made under current ratio thus both the peer and industry average was slightly waving up and down during the study period, the ratio was stood at 0.056, 0.0321, 0.0299, 0.0366 & 0.0401 and 0.0563, 0.0339, 0.0325, 0.0416 & 0.0478 respectively. However, insurers may require more liquid funds to continue in the solvent state and the unforeseen claims call for the better liquidity

position of an insurer, which needs to be taken care of seriously.

The 3rd ratio, liquid liabilities to total liabilities, reflects proportion of short-term obligations of the total obligations of an insurer. Both the peer and sector averages indicate marginal range of short-term maturity of obligations between 17.3 – 4.5 per cent and 15.1 – 4.1 per cent (See the current ratio discussion above).

Table-7: Liquidity Risks Indicators

Name of the Insurer			2008/09	2009/10	2010/11	2011/12	2012/13
Public Sector							
1	LIC	LA to LL	2.4867	2.259	3.7229	3.0871	5.8585
		LA to TA	0.0579	0.0443	0.0478	0.0719	0.0943
		LL to TL	0.0233	0.0196	0.0129	0.0233	0.0161
Private Sector							
2	SBI Life	LA to LL	0.3986	0.5538	0.7773	2.4152	2.3992
		LA to TA	0.0289	0.0283	0.0338	0.0682	0.0654
		LL to TL	0.0781	0.0534	0.0453	0.0296	0.0288
3	ICICI Prudential	LA to LL	0.5739	0.3759	0.4171	0.5372	0.6484
		LA to TA	0.0196	0.0100	0.0095	0.0133	0.0176
		LL to TL	0.0393	0.0289	0.0244	0.0266	0.0291
4	HDFC Standard	LA to LL	1.0563	0.6211	0.8044	0.8527	0.9776
		LA to TA	0.0814	0.0358	0.0375	0.0384	0.0417
		LL to TL	0.0915	0.0637	0.0505	0.0482	0.0450
5	Bajaj Allianz	LA to LL	0.6322	0.4740	0.7775	0.8106	1.0370
		LA to TA	0.0304	0.0160	0.0209	0.0247	0.0429
		LL to TL	0.0516	0.0351	0.0285	0.0335	0.0473
6	Birla SunLife	LA to LL	0.8147	0.8194	0.856	0.8648	0.8355
		LA to TA	0.0581	0.0382	0.0339	0.0392	0.0354
		LL to TL	0.0877	0.0539	0.0447	0.0509	0.0472
7	Bharti AXA	LA to LL	0.8422	0.8406	1.0437	0.7994	1.0128
		LA to TA	0.1175	0.0644	0.0439	0.0359	0.0375
		LL to TL	0.6867	0.1966	0.0930	0.0945	0.0746
Liquid Assets/ Liquid Liabilities		Peer Average	0.7197	0.6141	0.7793	1.0467	1.1518
		Industry Average	0.9721	0.8491	1.1998	1.3381	1.8241
Liquid Assets/Total Assets		Peer Average	0.0560	0.0321	0.0299	0.0366	0.0401
		Industry Average	0.0563	0.0339	0.0325	0.0417	0.0478
Liquid Liabilities/Total Liabilities		Peer Average	0.1725	0.0719	0.0477	0.0472	0.0453
		Industry Average	0.1512	0.0645	0.0428	0.0438	0.0412

- **LA to LL** = Liquid Assets/ Liquid Liabilities
- **LA to TA** = Liquid Assets/Total Assets
- **LL to TL** = Liquid Liabilities/Total Liabilities.

Statistical Evaluation of Public and Private Life Insurers

In addition to the ratio analysis, the CARAMEL parameters were statistically tested with the help of statistical tools, viz., Independent Samples T-test or/and Mann-Whitney test. The variables are capital adequacy, assets quality, reinsurance &

actuarial issues, management soundness/efficiency, earnings & profitability and liquidity.

Hypothesis Framed

To achieve the objectives, the study tested the following null hypotheses:

H01: There is no significant difference between capital adequacy of public and private life insurance companies.

H02: There is no significant difference between asset quality of public and private life insurance companies.

H03: There is no significant difference between reinsurance coverage and actuarial issues (risk management) of public and private life insurance companies.

H04: There is no significant difference between management soundness/efficiency of public and private life insurance companies.

H05: There is no significant difference between earnings and profitability of public and private life insurance companies.

H06: There is no significant difference between liquidity position of public and private life insurance companies.

Table-10: Descriptive statistics for Public and Private Life Insurers'

Variables	Public Life Insurer		Private Life Insurer	
	Mean	Std. Dev.	Mean	Std. Dev.
Solvency Ratio	1.5404	.0004	2.7097	1.0280
Total Capital to Total Assets	.0004	.00004	.1711	.2016
Total Capital to Reserve and Surplus	1.1115	.1297	7.1725	8.8016
Provisions to Total Assets	.0116	.0067	.0013	.0011
Risk Retention Ratio (Net Premium to Gross Premium)	.9994	.0002	.9926	.0066
Survival Ratio (Reserve and Surplus to Average Net Premium Received in last three years)	.0022	.0001	.1731	.1575
Operation Efficiency Ratio (Operating Expenses to Gross Premium)	.0721	.0105	.2883	.3209
First Year Premium Ratio (First Year Premium to Gross Premium)	.3841	.0342	.4607	.1325
ROE	133.09	109.99	.1611	.4657
ROA	.00098	.00009	-.0233	.0859
Expense Ratio (Operating Expenses to Net Premium)	.07213	.0105	.2903	.3220
Current Ratio	3.4828	1.4446	.8623	.4617
Liquid Assets to Total Assets	.0633	.0204	.0389	.0229
Liquid Liabilities to Total Liabilities	.0190	.0046	.0769	.1200

Source: SPSS

From table-10, it is clear that total mean of public life insurance is less as compared to the mean of private sector life insurance for solvency margin, capital to asset, capital to reserves and surplus, provisions to total assets, and survival ratio while for the operation efficiency ratio, ROE, ROA, Expenses ratio, Current ratio, and liquidity position public sector has far more better mean as compared to the private life insurers. However, both the public and private have got inadequate reinsurance coverage as per

risk retention ratio that is marginally differs between (public, 99.94 per cent and private, 99.26 per cent). The public life insurance has to focus on capital adequacy and reinsurance & actuarial issues improvements as it is lacking behind in all factors of its determinants due to which total mean of public sector is also getting low. Whereas the private life insurance has to focus on underwriting processes and its related expenses, earnings & profitability, liquidity positions and reinsurance & actuarial issues improvements as it is lacking behind in all factors of its determinants.

Capital Adequacy

Table-11(a): Public and Private Life Insurers Capital Adequacy determinant variables

	Category	N	Mean	Std. Deviation	Std. Error Mean
Solvency Ratio	Public	5	1.5400	.0004	.0002
	Private	30	2.7097	1.0280	.1877
Total Capital to Total Assets	Public	5	.0004	.00004	.00002
	Private	30	.1711	.20163	.03681
Total Capital to Reserve and Surplus	Public	5	1.1115	.1297	.0580
	Private	29	7.1725	8.8016	1.6344

Table-11(b)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Solvency Ratio	Equal variances assumed	4.7	.038	-2.5	33	.017	-1.1693	.4655	-2.1163	-.2222
	Equal variances not assumed			-6.2	29.0	.000	-1.1692	.1877	-1.5531	-.7854
Total Capital to Total Assets	Equal variances assumed	5.1	.031	-1.9	33	.070	-.1707	.0913	-.3565	.0150
	Equal variances not assumed			-4.6	29.0	.000	-.1707	.0368	-.2460	-.0955
Total Capital to Reserve and Surplus	Equal variances assumed	3.9	.057	-1.5	32	.002	-6.0609	3.9868	-14.1819	2.0600
	Equal variances not assumed			-3.7	28.1	.001	-6.0610	1.6355	-9.4106	-2.7113

Source: SPSS

The table-11(a) shows that the mean for private life insurers of solvency margin, capital to total assets, and capital to reserves & surplus is 2.7097, 0.1711 and 7.1725 against 1.5400, 0.0004 and 1.1115 for public life insurer respectively. It predicts that the mean capital adequacy level in private life insurance is far better to the mean capital adequacy level in public life insurance. From the table-11(b) above[15], P-value is equal to

[15] The p-values for the Levene's test for equality of variance is 0.038, 0.031 and 0.057 (under "sig") since these values are less than alpha=0.05 except for total capital to reserve & surplus, this implies that the

0.00, 0.00 and 0.002, for the solvency margin, capital to asset, and the capital to reserve & surplus ratio is significant at alpha 5%. Thus, we reject the null hypothesis and conclude that there is statistically a significance difference between the mean capital adequacy for private life insurers and the mean capital adequacy for public insurer. The 95% confidence interval for the difference between two means[16] is (-1.5531, -0.7854) for solvency margin, (-0.2460, -0.0955) for the total capital to total assets and (-14.1819, 2.0600) for the total capital to reserve and surplus.

Asset Quality

Table-12(a): Public and Private Life Insurers' asset quality determinant variable

	Category	N	Mean	Std. Deviation	Std. Error Mean
Provisions to Total Assets	Public	5	.0116	.0067	.0030
	Private	30	.0013	.0011	.0002

Table-12(b)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Provisions for NPAs to Assets	Equal variances assumed	17.9	.000	8.26	33	.000	.0103	.0012	.0077	.0128
	Equal variances not assumed			3.39	4.04	.027	.0103	.0030	.0019	.0186

Source: SPSS

The table-12(a) shows that the mean for private life insurers of provisions for NPAs to total assets is 0.0013 against 0.0116 for public life insurer respectively. It predicts the asset quality level in private and public life insurance companies. Below 3% generally consider as indicator of good asset quality while above 3% indicates poor quality of asset, accordingly the asset quality of both the public and private is even below 2%, that is, 1.16% for public and 0.13% for private. From the table-12(b), P-value is equal to 0.027 and is significant at alpha 5%. Thus, we reject the null hypothesis and conclude that there is statistically a significance difference between the mean asset quality in private life insurers and the public insurer.

variances cannot be assumed to be equal. Therefore, we used the t-test result given in the second row "Equal variances not assumed."

[16] This is for the average weight of public minus average weight of private life insurers, because we have defined Group 1 as public and Group 2 as private.

Reinsurance and Actuarial Issues

Table-13(a): Public and Private Life Insurers' risk management determinant variables

	Category	N	Mean	Std. Deviation	Std. Error Mean
Risk Retention Ratio	Public	5	.9994	.0002	.0001
	Private	30	.9926	.0066	.0012
Survival Ratio	Public	5	.0022	.0001	.0001
	Private	30	.1731	.1575	.0288

Table-13(b)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Risk Retention Ratio	Equal variances assumed	3.65	.065	2.285	33	.029	.0068	.0030	.0007	.0128
	Equal variances not assumed			5.647	29.44	.000	.0068	.0012	.0043	.0092
Survival Ratio	Equal variances assumed	8.64	.006	-2.395	33	.022	-.1709	.0713	-.3160	-.0257
	Equal variances not assumed			-5.941	29.000	.000	-.1709	.0288	-.2297	-.1120

Source: SPSS

The table-13(a) shows that the mean for private life insurers of risk retention and survival ratio is 0.9926 and 0.1731 against 0.9994 and 0.0022 for public life insurer respectively. It predicts the risk management scenario which prevails in private and public life insurance companies. From the table-13(b), P-value of risk retention ratio and survival ratio is equal to 0.029 and 0.00, is significant at alpha 5%. Thus, we reject the null hypothesis and conclude that there is a significance difference between the risk

management practices in private and public life insurance companies.

Management Soundness

Table-14(a): Public and Private Life Insurers' management soundness determinant variables

	Category	N	Mean	Std. Deviation	Std. Error Mean
Operation Efficiency Ratio	Public	5	.0721	.0105	.0047
	Private	30	.2883	.3209	.0586
First Year Premium Ratio	Public	5	.3841	.0342	.0153
	Private	30	.4607	.1325	.0242

Table-14(b)[17]

Test Statistics		
	Operation Efficiency Ratio	First Year Premium Ratio
Mann-Whitney U	9.000	51.000
Wilcoxon W	24.000	66.000
Z	-3.111	-1.131
Asymp. Sig. (2-tailed)	.002	.258

The table-14(a) shows that mean the Mean for private life insurers of operation or underwriting efficiency ratio and first year premium ratio is 0.2883 and 0.4607 against 0.0721 and 0.3841 for public life insurer respectively. It predicts the management soundness which prevails in private and public life insurance companies in India. Accordingly, the operation efficiency ratio of public is far better than private insurers, that is, underwriting expense to gross written premium, were stood at 7.21 per cent for public and 28.83 per cent for private life insurers is high expenses. From the table-14(b) shows that P-value of operation efficiency ratio and first year premium ratio is equal to 0.002, is significant and 0.258, and is not significant at alpha 5%. Thus, we conclude that there is a significance difference between operation efficiency in private and public life insurance companies while there is statistically not a significant difference between New Business Premiums (NBP) in private and public life insurance companies.

[17] Note that, the normality test for private life insurers indicated that data is not normal; therefore, we cannot use the ordinary 2-sample independent t-test. Instead, we used a non-parametric test, called the Mann-Whitney test the results herein above table-14(b).

Earnings and Profitability

Table-15(a): Public and Private Life Insurers' earnings & profitability determinant variables

	Category	N	Mean	Std. Deviation	Std. Error Mean
ROE	Public	5	133.0967	109.9955	49.1914
	Private	30	.1611	.4657	.0850
ROA	Public	5	.0010	.00009	.00004
	Private	30	-.0233	.0859	.0157
Expense Ratio	Public	5	.0721	.0105	.0047
	Private	30	.2903	.3212	.0588

Table-15(b)

Test Statistics			
	ROE	ROA	Expense Ratio
Mann-Whitney U	.000	65.000	9.000
Wilcoxon W	465.000	80.000	24.000
Z	-3.536	-.471	-3.111
Asymp. Sig. (2-tailed)	.000	.637	.002

Source: SPSS

The table-15(a) shows that the Mean for private life insurers of ROE, ROA and Expense ratio is 0.1611, -0.0233 and 0.2903 against 133.0967, 0.0010 and 0.0721 for public life insurer respectively. It predicts the earnings and profitability in private and public life insurance companies in India. From the table-15(b) P-value of ROE, ROA and Expense ratio is equal to 0.00 is significant, 0.637 is not significant and 0.002 is significant at alpha 5%. Thus, we conclude that there is a significance difference between ROE and Expense ratio in private and public life insurance companies while there is statistically not a significant difference between ROA in private and public life insurance companies.

Liquidity Position

Table-16(a): Public and Private Life Insurers' Liquidity Risks determinant variables

	Category	N	Mean	Std. Deviation	Std. Error Mean
Current Ratio	Public	5	3.4828	1.445	.6461
	Private	30	.8623	.4617	.0843
Liquid Assets to Total Assets	Public	5	.0633	.0204	.0091
	Private	30	.0389	.0229	.0042
Liquid Liabilities to Total Liabilities	Public	5	.0190	.0046	.0020
	Private	30	.0769	.1200	.0219

Table-16(b)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Current Ratio	Equal variances assumed	12.437	.001	8.176	33	.000	2.6205	.3205	1.9684	3.2727
	Equal variances not assumed			4.022	4.137	.015	2.6205	.6515	.8350	4.4061
Liquid Assets to Total Assets	Equal variances assumed	.002	.965	2.226	33	.033	.0243	.0109	.0021	.0465
	Equal variances not assumed			2.423	5.821	.053	.0243	.0100	-.0004	.0491
Liquid Liabilities to Total Liabilities	Equal variances assumed	1.014	.321	-1.065	33	.000	-.0579	.0544	-.1685	.0527
	Equal variances not assumed			-2.631	29.491	.013	-.0579	.0220	-.1029	-.0129

Source: SPSS

The table-16(a) shows that the mean for private life insurers of current ratio, liquid assets to total assets, and liquid liabilities to total liabilities is 0.8623, 0.0389 and 0.0769 against 3.4828, 0.0633 and 0.0190 for public life insurer respectively. It predicts the liquidity positions in private and public life insurance companies. From the table-16(b) P-value of current, liquid assets to total assets, and liquid liabilities to total liabilities ratio is equal to 0.015, 0.033 and 0.00 is significant at alpha 5%. Thus, we conclude that there is a significance difference between liquidity position in private and public life insurance companies.

Conclusion

The objective of this study was to examine the financial soundness and performance of life insurance companies in India, based on regulatory and supervisory parameters and standards; thereby to ensure the prudence of the sector. Thus, the study was delved into the financial soundness and performance of life insurance companies using the soundness indicators and performance measures via employing CARAMEL model. In addition to the ratio analysis, the CARAMEL parameters were statistically tested.

The CARAMEL model results reveal that; Indian life insurance companies have been satisfactorily financially sound by and large. However the researcher observed strange weaknesses and believes it's due to the sector has given the excessive attention on marketing divisions to grow premiums without a proportionate earmarking of resources towards the risk management of their investment portfolios. Therefore, the

following points need to be taken care of seriously since the complexity has been increasing in response to the deregulations: Absence of Risk-Based Supervision (RBS) approach by regulatory, thereby lacks of internally prescribed benchmarks for the financial soundness indicators (i.e. CARAMEL); inadequate reinsurance coverage in the sector, i.e. high risk retention and low survival ratios; relatively inadequate capital position of LIC against private players; and high underwriting expenses to Gross Written Premium (GWP) in the sector. Statistical test of the CARAMEL model results reveal that; there was a significance difference between capital adequacy, asset quality, management efficiency, earnings & profitability and liquidity positions in private and public life insurance companies. This study does not find enough evidence for difference between the ROA and the New Business Premiums (NBP) in private and public life insurance companies.

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