Concentration, Competition, Profitability and Performance Efficiency of Select Life Insurers in Kerala

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Abstract: *In developing countries like India, the need for insurance, a safety net, is much greater, particularly at the poorest levels where vulnerability to risks is much greater and there are fewer opportunities available to recover from a large loss. The primary function of insurance is to act as a risk transfer mechanism to provide peace of mind and to protect against losses. Indian insurance industry in general and Kerala insurance industry in particular is facing major challenges in reaching out willing customers, providing them services, acquiring and retaining players, product and distribution, innovation etc. Apart from addressing the challenges of customers, improving the performance to achieve profitable growth is a big challenge faced by life insurers. A well developed and evolved insurance industry is a boon for economic development as it provides long term funds for infrastructure development of every economy. A well performing life insurance industry benefits consumers, producers and insurance firm stockholders alike. The present study examines concentration, competition, profitability and performance efficiency of select life insurers (LIC of India, SBI life, ICICI Prudential, HDFC Life, Bajaj Allianz) in Kerala.*

Keywords: *Concentration, profitability, performance efficiency, life insurers*

I. INTRODUCTION

In the developed world, insurance is part of society such that some forms of cover are required by law. In developing countries like India, the need for such a safety net is much greater, particularly at the poorest levels where vulnerability to risks is much greater and there are fewer opportunities available to recover from a large loss. The primary function of insurance is to act as a risk transfer mechanism to provide peace of mind and to protect against losses (Jayanta, 2014). Indian insurance industry in general and Kerala insurance industry in particular is facing major challenges in reaching out willing customers, providing them services, acquiring and retaining players, product and distribution, innovation etc. Apart from addressing the challenges of customers, improving the performance to achieve profitable growth is a big challenge faced by Indian life insurers. To sustain the profitable growth, private companies are struggling in spreading awareness about need of insurance, developing brand strength, meeting regulatory demands, establishing wide network of distribution channels and setting infrastructure (Sumninder, 2013). A well developed and evolved insurance industry is a boon for economic development as it provides long term funds for infrastructure development of every economy (Joseph). A well performing life insurance industry benefits consumers, producers and insurance firm stockholders alike. Unfavourable market conditions stress the need for life insurers to perform well in order to remain solvent (Jacob, 2012).

Efficiency is often used as an indirect measure of competition. More efficient firms outperform their less efficient counterparts in terms of profits, hence fostering industry-wide efficiency. Competition rewards efficiency; an efficient firm will gain a higher market share and realize higher profits than a less efficient one. Hence in a more competitive market, efficient firms perform better in terms of market share and profits than inefficient firms (David, Maraia, & Vencappa, 2014). Efficiency measurement is becoming a very vital component in the contemporary business environment. A company is deemed to be efficient if it optimally utilizes its resources in producing the output and inefficient if vice versa (Tanuj & Ujjwa, 2014).

Several indexes have been used to measure market concentration. Concentration ratios (CR) and Herfindahl-Hirschman Index (HHI) are the most used. Concentration ratio is a simple industrial concentration rate and it is calculated based on the "n" largest companies operating in the respective industry. The concentration ratio ranges from zero to 100. CR is zero for an infinite supposed number of operators, which equally share the market. CR is 100 for the insurance companies counted in the ratio of all the companies operating in the insurance market (Gentiana & Sali). If we find a statistically significant coefficient of concentration, this would provide evidence of a relation between market concentration and profitability within the life insurance industry (Cassandra, Enya, & Bradley, 2015).

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Profitability is a measurement of efficiency and it is a metric used to determine the scope of a company's profit in relation to the size of the business. It is an ability of a business to produce a return on an investment based on its resources in comparison with an alternative investment. Although a company can realize profit does not necessarily mean that the company is profitable. The most common measures of profitability are ROE and ROA.

II. REVIEW OF LITERATURE

In the pre-reform era, Life insurance Corporation of India (LICI) dominated the Indian life insurance sector with a market share of close to 100 percent. But the situation drastically changed after liberalization and at the end of 2015, the market share of LICI stood at 73.43 percent (Joy, 2016). A study (Kadam, 2012) suggests that LIC has to cut the management expenses, invest more in infrastructure and need to emphasize in international markets. Overall performance evaluation of LIC of India is consistent and suggested to have more service standards to maintain market value of products (Agnihotri, 2014).

A study (Kaur & Negi, 2010) explores factors that are important determinants of customer satisfaction of in case of life insurance customers, to see how much effect the factors have on overall customer satisfaction; and identifies the common grievances of customers with regard to their life insurance policies. The level of income and wealth are considered to be one of the most important factors that influences insurance market demand. Insurance demand varies with the level of gross domestic product, which implies that the larger GDP the larger insurance demand (Vladimir, Dragan, & Dragan, 2011).life insurance firms need to remain a financially sound condition over decades in order to be able to pay out the promised benefits.

A bird eye view of the available literature shows that many studies have been conducted so far in the field of insurance, insurance industry, customer satisfaction towards insurance services etc. But studies concerning concentration, competition, and profitability and performance efficiency of select life insurers in India or in Kerala are rarely found in literature. The present study tries to fill such gap.

Significance of the study

The development of any modern age economy cannot be realized, if its insurance sector remains underdeveloped. The insurance industry plays a crucial role in mitigating risks, supporting critical social levers, providing long term capital for infrastructure development and rendering poise to equity markets. Insurance supports institutions in keeping a tab on unforeseeable losses, which can be otherwise jeopardizing the institution's existence. Insurance brings consistency to earnings by capping damages. It instills confidence among investors to take business risks in areas where they would not participate normally. With limited instruments available in the Indian market to support long term assets liability management, the insurance sector has successfully channelized savings toward nation building through infrastructure development. This sector is to be considered as a major employment provider in India. Hence a study on concentration, competition, and profitability and performance efficiency of life insurers is found significant.

Statement of the problem and scope of the study

Insurance is an industry which has value creation at its core. It generates value for policyholders who lay their trust in an insurance product, for shareholders who back the business, for distributors who depend on it for their income and the insurance company itself which interlinks all the other stakeholders. It is this linking, which if done in a balanced manner while keeping the costs low, creates a long term success story. In this context the present study attempts to analyze the concentration, competition, profitability and performance efficiency of five (LIC of India, SBI life, ICICI Prudential, HDFC life and Bajaj Allianz) select life insurers in Kerala. The life insurers were selected on the basis of highest percentage of market share.

Objective of the Study

- The objective of the study is to analyze the select life insurers in Kerala in terms of its concentration and competition, profitability and performance efficiency.

III. METHODOLOGY

The present study is an analytical one based on the secondary data for a period of seven years from 2010-11 to 2016-17. The required data have been mainly sourced from the annual reports of select life insurers, IRDA website, and scholarly articles. The data have been analyzed by means of simple percentage, Concentration Ratio (CR5), Herfindahl-Hirschman Index (HHI), financial ratios (such as ROA and ROE) and a non-parametric linear programming model known as Data Envelopment Analysis (DEA). In order to do Data Envelopment Analysis a computer software 'DEAP' is used.

IV. RESULTS AND DISCUSSION

Market concentration and competition of select life insurers

In order to measure market concentration and competition, Herfindahl-Hirschman Index (HHI), a commonly accepted measure of market concentration was administered. It is calculated by squaring the market

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share of each firm competing in the market and then summing the resulting numbers. It takes into account the relative size of distribution of the firms in a market. It approaches zero when a market is occupied by a large number of firms of relatively equal size and reaches its maximum of 10000 points when a market is controlled by a single firm. A market with an HHI of less than 1500 to be a competitive market place, an HHI of 1500 to 2500 to be a moderately concentrated market place, and an HHI of 2500 or greater than 2500 to be a highly concentrated marketplace characterized by a true monopoly (Gentiana & Sali). This would provide evidence of a relation between market concentration and profitability within the life insurance industry (Cassandra, Enya, & Bradley, 2015). The following table shows the HHI and CR of the select life insurers operating in Kerala.

Table1: Market concentration and competition of life insurers (HH Index & CR5)

Name of insurers	*Sales (first year premium collected)*	*% of market share*	*Square of the % of market share*	*HHI*	*CR5*
LICI	97891.51	78.9337	6230.5384	6325.9092	97.6637
SBI life	7106.58	5.73	32.8364		
ICICI Prudential	6765.75	5.45	29.7623		
HDFC Life	6487.22	5.23	27.3623		
Bajaj Allianz	2884.52	2.32	5.4098		

Source: compiled by the researcher

From the above table it is clear that the HHI is 6325.9092 which is more than 2500, means a highly concentrated market characterized by true monopoly. This is evident from the market share of LICI (78.9337percent). The idea is made much clear by the CR5 (concentration ratio of five companies) that 97.6637 percent of the market share is concentrated in the hands of above mentioned five companies. It means that the profitability of these firms are high.

Profitability of select life insurers

The most important ratios that gauge a company's ability to generate earnings from its investments are return on assets (ROA) and return on equity (ROE). These two ratios together provide a clear representation of a company's performance (means management's effectiveness). Of all the fundamental ratios that investors look at, one of the most important is ROE. It is a basic test of how effectively a company's management uses investors' money. ROE is certainly a hint that management is giving shareholders more for their money. Many professional investors look for a ROE of at least 15 percent. The ROA shows that how much profit a company earns for every rupee of its assets. Professional money managers will consider stocks with an ROA of less than 5 percent. A negative ROA, suggests that a company is not properly utilizing its capital and may have disputed management. A company with negative ROA, means it is investing a high amount of capital into its production and simultaneously receiving little income. The company can have return on assets even if it is bearing low profit margin (Sumninder & Samiya, 2013). If ROA is sound and debt levels are reasonable, a strong ROE is a solid signal that managers are doing a good job of generating return from shareholders' investments. The following table shows the ROA and ROE of select life insurers in Kerala for the last five years.

Table2: Profitability of select life insurers (Financial Ratios- ROA & ROE)

Performance		*2016-17*	*2015-16*	*2014-15*	*2013-14*	*2012-13*
LICI	ROE	33.93	38.09	31.82	31	29
	ROA	0.01	0.01	0.02	0.01	0.01
SBI Life	ROE	18.80	19.48	22.53	24.72	25.91
	ROA	0.00	0.00	0.00	0.00	2.65
ICICI Prudential	ROE	30.05	33.22	36.03	38.57	43.35
	ROA	0.00	0.00	0.00	0.00	4.28
HDFC Life	ROE	44.73	41.36	37.11	-18.06	-9.12
	ROA	0.00	2.80	0.92	-0.42	0.00
Bajaj Allianz	ROE	15.55	15.83	15.75	16.80	18.53
	ROA	.016	0.012	0.02	0.026	0.03

Source: Calculated by the researcher from the annual reports of the concerned.

From table 2 above, it is evident that the ROE and ROA of Life Insurance Corporation of India (LICI) is seems to be good. Because it's ROE is much more than the accepted norm of 15 percent (almost double in all years). It means that it gives its shareholders more profit for the money they had invested in the business. It's ROA shows that it earns a profit of 0.01 for every rupee of its assets for all the years. It means that its profitability is very sound.

As far as SBI life is concerned, it also has a good ROE which is more than the accepted norm of 15 percent. But its ROA is not sound for the last couple of years.

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As far as ICICI Prudential in concerned, its ROE is very high but it seems to be reduced year after year. Means its efficiency in earnings is sound but getting reduced year after year. It's a warning to the management that they have to take some measures for improvement.

As far as the HDFC life is concerned, its ROE is comparatively the highest for the last three years. It means that the company management is very efficient in giving back a good return to its shareholder for the money they invested in the business. But its ROA is not showing a consistent pattern and it has negative ROA also. It means that the company is not properly using its capital.

As far as the Bajaj Allianz is concerned, its ROE is also above the accepted norm of 15 percent. It means that it offers good earnings to its shareholders. But its ROE is reducing year after year that it gives a hint that its efficiency is reducing year after year. Its ROA is consistent throughout the last several years. It shows that for every rupee of asset it earns a profit of 0.02 for all the years. It means that its profitability is also very sound and it is properly utilizing its capital.

Performance efficiency of select life insurers

In order to measure the performance efficiency of select life insurers, Data Envelopment Analysis (DEA) a non-parametric linear programming model has been applied. In DEA, efficiency of an organization is calculated relative to the group's observed best practice. DEA evaluates the input consumed and output produced by organizations (Decision Making Units) and identifies those units that comprise an efficient frontier and lie below this frontier. The standard DEA models have an input and output orientation. An input orientation identifies the efficient consumption of resources while holding output constant. An output orientation identifies the efficient level of output for given existing resource consumption (Jayanta, 2014). Two basic Data Envelopment Analysis (DEA) models namely; Charnes-Cooper_Rhodes (CCR) model for constant return to scale (CRS) and Baker-Charnes-Cooper (BCC) model for variable return to scale (VRS) have been applied to estimate the relative efficiency of the select life insurance companies for the period from 2010-11 to 2016-17.

In order to conduct data envelopment analysis, three inputs viz., (i) labour cost (x1), (ii) operating expenses (x2) and (iii) commission paid (x3) and three outputs viz., (i) premium earned (y1), (ii) claims paid (y2) and (iii) income from investments (y3) of select life insurers were used. All these variables were identified on the basis of review of literature. The result of VRS and CRS input oriented data envelopment analysis of the select life insurers is presented in table 3 to table 9.

Table3: Result - data envelopment analysis (2010-11)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	0.704	1.000	0.704	decreasing
SBI Life	0.560	0.936	0.598	decreasing
ICICI Prudential	0.531	1.000	0.531	decreasing
HDFC Life	0.693	0.825	0.841	decreasing
Bajaj Allianz	0.718	1.000	0.718	decreasing
Mean	*0.641*	*0.952*	*0.678*	

Source: calculated from secondary data.

From the above table it is observed that only three firms (LICI, ICICI and Bajaj Allianz) are efficient when VRS is assumed (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). But all other insurers are inefficient in both the CRS and VRS technical efficiencies are assumed. It is also to be noted that all five firms are on the decreasing returns to scale portion of the VRS frontier.

Table4: Result - data envelopment analysis (2011-12)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	0.506	1.000	0.506	decreasing
SBI Life	0.424	0.451	0.940	increasing
ICICI Prudential	0.728	1.000	0.728	decreasing
HDFC Life	0.649	0.712	1.000	
Bajaj Allianz	0.917	1.000	0.917	decreasing
Mean	*0.644*	*0.833*	*0.818*	

Source: calculated from secondary data.

From the above table it is observed that only three firms (LICI, ICICI and Bajaj Allianz) are efficient when VRS is assumed (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). But all other insurers are inefficient in both the CRS and VRS technical efficiencies are assumed. It is also to be noted that three the firms are on the decreasing returns to scale portion of the VRS frontier and one firm is on the increasing returns to scale portion of the VRS frontier.

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Table5: Result - data envelopment analysis (2012-13)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	0.765	1.000	0.765	decreasing
SBI Life	0.587	0.587	1.000	
ICICI Prudential	1.000	1.000	1.000	
HDFC Life	0.729	0.957	0.761	decreasing
Bajaj Allianz	1.000	1.000	1.000	
Mean	*0.816*	*0.908*	*0.905*	

Source: calculated from secondary data

From the above table it is observed that two firms (ICICI Prudential and Bajaj Allian) are efficient when both CRS and VRS are assumed (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). LIC is efficient when VRS is assumed. Other two firms (SBI life and HDFC life) are inefficient. It is also to be noted that two firms (LIC and HDFC life) are on the decreasing returns to scale portion of the VRS frontier.

Table6: Result - data envelopment analysis (2013-14)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LICI	0.651	1.000	0.651	decreasing
SBI Life	0.486	0.492	0.986	Decreasing
ICICI Prudential	0.839	1.000	0.839	Decreasing
HDFC Life	0.791	0.986	0.803	Decreasing
Bajaj Allianz	1.000	1.000	1.000	
Mean	*0.753*	*0.895*	*0.856*	

Source: calculated from secondary data

From the above table it is clear that Bajaj Allianz is efficient when CRS and VRS are assumed (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). LICI and ICICI Prudential are efficient when VRS is assumed. SBI life and HDFC life are not efficient. But all the firms other than Bajaj Allianz are on the decreasing returns to scale portion of the VRS frontier.

Table7: Result - data envelopment analysis (2014-15)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	1.000	1.000	1.000	
SBI Life	1.000	1.000	1.000	
ICICI Prudential	1.000	1.000	1.000	
HDFC Life	1.000	1.000	1.000	
Bajaj Allianz	1.000	1.000	1.000	
Mean	*1.000*	*1.000*	*1.000*	

Source: calculated from secondary data

From the above table it is clear that all the firms are efficient when both CRS and VRS are assumed (TE CRS =1.000, TE VRS= 1.000 and SE=1.000).

Table8: Result - data envelopment analysis (2015-16)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	1.000	1.000	1.000	
SBI Life	1.000	1.000	1.000	
ICICI Prudential	1.000	1.000	1.000	
HDFC Life	0.997	1.000	0.997	Increasing
Bajaj Allianz	1.000	1.000	1.000	
Mean	*0.999*	*1.000*	*0.999*	

Source: calculated from secondary data

The above table shows that four firms (LIC, SBI life, ICICI Prudential and Bajaj Allianz) are efficient (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). But HDFC life is not efficient when CRS is assumed and is on increasing returns to scale portion of the VRS frontier.

Table9: Result - data envelopment analysis (2016-17)

DMU (insurers)	*Technical efficiency from CRS*	*Technical efficiency from VRS*	*Scale efficiency (CRS TE / VRS TE)*	
LIC	1.000	1.000	1.000	
SBI Life	1.000	1.000	1.000	

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ICICI Prudential	1.000	1.000	1.000	
HDFC Life	0.991	1.000	0.991	Increasing
Bajaj Allianz	1.000	1.000	1.000	
Mean	*0.998*	*1.000*	*0.998*	

Source: calculated from secondary data

The above table shows that four firms (LIC, SBI life, ICICI Prudential and Bajaj Allianz) are efficient (TE CRS =1.000, TE VRS= 1.000 and SE=1.000). But HDFC life is not efficient when CRS is assumed and is on increasing returns to scale portion of the VRS frontier.

The result from all the above tables is consolidated as follows:

Table10: efficiency of life insurers under CRS & VRS situations

Name of insurers	2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	CRS	VRS	CRS	VRS	CRS	VRS	CRS	VRS	CRS	VRS	CRS	VRS	CRS	VRS
LICI	I	E	I	E	I	E	I	E	E	E	E	E	E	E
SBI life	I	I	I	I	I	I	I	I	E	E	E	E	E	E
ICICI P	I	E	I	E	E	E	I	E	E	E	E	E	E	E
HDFC Life	I	I	I	I	I	I	I	I	E	E	I	E	I	E
Bajaj Allianz	I	E	I	E	E	E	E	E	E	E	E	E	E	E

Source: compiled from the calculated results

Note: 'I' means Inefficient and 'E' means efficient.

The above table shows that Bajaj Allianz is more efficient (12 Es) followed by ICICI Prudential (11 Es) and LICI (10 Es). LICI is efficient in all the years when VRS is considered.

Trend of industry efficiency

The improvement if any in the efficiency of the industry is examined by considering the mean values of efficiencies in the years under consideration. The result is consolidated in the following table.

Table11: Mean value of efficiencies of the insurers under the CRS and VRS situations

	2010-11 Mean	*2011-12 Mean*	*2012-13 Mean*	*2013-14 Mean*	*2014-15 Mean*	*2015-16 Mean*	*2016-17 Mean*
CRS	.641	.644	.816	.753	1.00	.999	.998
VRS	.952	.833	.908	.895	1.00	1.00	1.00
SE	.678	.818	.905	.856	1.00	.999	.998

From the above table, it is clear that the mean values show a fluctuating trend. Hence it may be interpreted that the insurance industry is not efficient and its efficiency is fluctuating year to year.

V. CONCLUSION

Indian life insurance market in general and Kerala life insurance market in particular is highly concentrated and characterized by true monopoly even after economic reforms. The 97.66 percent of the market share is concentrated in the hands of LICI, SBI life, ICICI Prudential, HDFC Life and Bajaj Allianz. The profitability of Life Insurance Corporation of India is good as it gives its shareholders more profits for the money they have invested in the business and it earns a profit of 0.01 for every rupee of its assets. It means that LICI is efficiently utilizing its capital. The profitability of HDFC is sound and is more efficient in its earnings. The profitability of ICICI Prudential and Bajaj Allianz is good but showing a reducing tendency. SBI life and HDFC life are to give much focus on the proper utilization of its capital. They have to check whether it is overcapitalized. If so, it is to be made properly capitalized by taking some internal re-organization of its financial structure, especially capital structure. As far as the performance efficiency of life insurers are concerned, Bajaj Allianz is more efficient followed by ICICI Prudential and Life Insurance Corporation of India. It means that these three firms are more efficient in the consumption of available resources. SBI life and HDFC life are to give much focus on the proper utilization of capital. It has to check whether it is overcapitalized. If so, it is to be made properly capitalized by taking sufficient measures. Since the market is more concentrated (true monopoly) the customers are not getting better services at competitive prices. The situation is to be changed. For that other firms operating in the market are to be brought up to the standard performance.

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