IMPACT OF LIBERALIZATION ON INDIAN LIFE INSURANCE INDUSTRY AN EXPLORATORY FACTOR ANALYSIS

J D Chandrapal,
Senior Business Associate
LIC of India – Ahmedabad, India.

Prof. Dr. A.C. Brahmbhatt,
Institute of Management - Nirma University, Ahmedabad, India.

ABSTRACT

There is a substantial amount of debate regarding the impact of liberalization on Indian life insurance industry; huge literature available on the impact of liberalization on the key components in the world context. Few studies are available in context of Indian insurance industry that have examined varying aspects such as emerging strategic and regulatory issues, appraisal of industry development, deregulation of industry and economic growth nexus, changing trend structure and innovation in post liberalization phase. The main purpose of this paper is to examine the factors that influenced the development of the life insurance industry in India in post liberalization phase. To cater a central interest of this paper by using data of 552 respondent from various categories such as Intermediaries, Employees, and Customers across length and breadth of the country; empirically examined the impact of the liberalization on Indian life insurance industry, and extracted the factors by applying Exploratory Factor Analysis for identifying groups or clusters of variables that relate to each other. Based on the results obtained; it is concluded that significant impact of liberalization mainly be explained by the factors such as Marketing Mix, Service Quality and Insurance awareness. The research results undoubtedly confirm the significance of the relationship between liberalization trends and change factors in the insurance market of India, hence providing a background for further research in this area and description and illustration of brief and step by step overview of exploratory factor analysis (principal component analysis) by using SPSS.

Keywords: Insurance, Liberalization, IRDA, Factor Analysis
JEL Classification: G22, L51, C3

INTRODUCTION:

The term "Liberalization, Privatization and Globalization (LPG)" became a widely used buzzword in the name of economic reforms; Globalization or economic liberalization is not a new phenomenon; Frank argued that *a form of globalization has been in existence since the rise of trade links between Sumer and the Indus Valley Civilization in the third millennium B.C.* (http://en.wikipedia.org, 2013).Globalization deeply rooted in the ancient history and it has travelled through many facets.

In the early 1990s the economic reforms started, it leads to Liberalization, Globalization and Privatization (LPG). Sadhak argued that *often the term liberalization and globalization are used simultaneously* (Dr. H. Sadhak, 2005). Liberalization tempted global giants to enter in the Indian business and industry. They came with their values, culture, knowledge and technology that have posed great challenges to the protected market. In the changing scenario financial services liberalization have a great impact on economic growth;

With the passage of the Insurance Regulatory and Development Authority (IRDA) Bill, The Government of India has liberalized the insurance sector in March 2000. Thus entry restrictions lifted and foreign players were allowed to enter in the Indian insurance industry with their domestic partners with FDI Cap of 26 per cent. Deregulation and liberalization has revolutionized insurance sector in India.

The economic reforms i.e. Liberalization has posed some challenges to Indian life insurance industry. More competition, rising customer expectation, aggressive marketing, new knowledge, technology, political environment, changing social values, use of marketing mix, recruitment and retention, alternative distribution channel, phenomenal business strategies, innovation and creativity, cost effectiveness, Life expectancy and many issues came in the front to address. In the post liberalization period life insurance business felt a drastic change. Indian Life Insurance industry felt a great impact of Liberalization, There is a huge literature in form of articles, books and reports that have looked in to the transition of Indian life insurance industry. Some of the studies have tried to extract impact of liberalization on the insurance industry. Still there is a scope for the further study to extract change factors induced by the liberalization of Indian life insurance industry. This study facilitates the attempt to extract change factor by exploratory factor analysis based on 552 respondents of various category such as Intermediaries, Insurance Employees and Policy Holders from across the country.

LITERATURE REVIEW:

Since early nineties, globalization emerged as an unavoidable process and irresistible force. Among trade and services liberalization; financial liberalization is a very crucial issue in terms of socio-economic growth and development.

Among the most detailed studies to date is by Megginson et al. They compared the pre- and post-privatization financial and operating performance of 61 companies from 18 countries and 32 industries during the period 1961 to 1990.They found increases in profitability, efficiency, capital spending, employment and real sales after divestiture (William L. Megginson, 1994). Mojmir Mrak (2000), Philip Arestis (2005), Bumann et al (2012) observed relationship between financial development and growth from the perspective of evaluation of the effects of financial liberalization.

In view of Harold D. Skipper, Jr. the financial services literature suggests that economic evidence favors the opening of markets to foreign insurer participation offer the potential for improved customer service and value which can lead to increased domestic productivity and efficiency; increases in domestic savings which can lead to greater economic growth; technological and managerial transfers; and other microeconomic and macroeconomic benefits (Skipper, 1997). Using panel data of 39 countries over the period 1979–2007; Chien-Chiang Lee and Chi-Hung Chang has empirically examined the influence of the KOF[1] index of globalisation (overall and its three main sub-indices) on the development and convergence of international life insurance markets by a panel co integration technique. They found that globalisation has a significant impact on the development of international

[1] KOF database of the Swiss Economic Institute ("Konjunkturforschungsstelle"), proposed by Axel Dreher. KOF index of globalisation calculates an overall index (GLOB) as well as the three main dimensions of globalisation, including economic (ECO), social (SOC) and political (POL).

life insurance markets (Chang, 2012). Cuizhen Zhang and Nong Zhu argued that the open-door policy and the export-oriented sectors greatly contribute to the modernization and marketization of local economy, and hence would have effect on the demand for insurance (Cuizhen Zhang and Nong Zhu, 2010). Baur et al argued that together with globalisation; IT progress is a major driver behind the structural change in the insurance industry to enhance risk transfer efficiency. (Esther Baur, 2001). Hu et al studied with the data envelopment analysis (DEA) method to estimate the efficiencies of the insurers based on a panel data between 1999 and 2004 (Xiaoling Hu, 2009).

Liberalized insurance industry represents various factors that significantly contributed to transition in the insurance industry. With the passage of the Insurance Regulatory and Development Authority (IRDA) Bill; Indian insurance industry felt transition, participation of foreign players in the domestic market revolutionized the industry. Some change factors induced by the liberalization. C S Rao[2] discussed in a paper presented at FICCI that Insurance sector growing at a rapid pace after the sector was opened up and aggressive marketing strategy of private players and in its turn public sector also have redrawn its priorities, revamped their marketing strategy. Insurance penetration and density has shown signs of improvement. There is a plethora of new and innovative products, significant beneficial change in the area of insurance intermediation with the introduction of alternate channels like Bancassurance, Brokers, Corporate Agents and Direct marketing through internet (C S Rao, 2005). Bajpai[3] stated that the five years of liberalization of the insurance industry has experienced watershed development. The product, Distribution Channel and overall Strategy mix has undergone transformation partly introduced by the new players and partly induced by the environmental developments (G. N. Bajpai, 2006). O P Dubey[4] (2005), Pramod Pathak and Saumya Singh (2007) and Jayshree and Sumathi (2009) observed increased insurance awareness and consumer education in the post liberalization phase. Vivek Gupta (2004), Naren Joshi (2005), K C Mishra and Simita Mishra (2005), V. G. Chari (2005), M. Kartikeyan (2007), Dhevan and Shanmugasundaram (2007), B. V. Ramana (2007), Pramod Pathak and Saumya Singh (2007), T. Nagananthini (2009), Selvakumar and Priyan (2010), Chandirakala (2010) and G. Prabhakara (2010), observed a innovative product line, evolution of multiple distribution channel and higher standards of service quality in light of liberalization of Indian life insurance industry. V K Agarval (2002), Babita Arora (2003), G. Prabhakara (2010), V. G. Chari, (2005), Dhevan and Shanmugasundaram (2007), B Manoharan (2007), B. V. Ramana (2007) and Martina and Sairani (2010), observed new emerging technologies to meet the changing needs and greater use of computerization and information technology in post liberalization era of Indian insurance industry. Sumathi and Jayashree (2009) and Selvakumar and Priyan (2010) observed huge employment opportunities in liberalized Indian insurance sector. Manoj Kumar (2004) and Rakesh Agarwal (2004) observed one of the most significant changes in the Indian financial services sector over past few years has been the growth and development of Bancassurance. Selvakumar and Priyan (2010) and Vivek Gupta (2004) observed campaign and promotional activities after entry of private players in Indian insurance industry. Prabhakara observed progressive growth in terms of penetration and density in post reform era (G. Prabhakara, 2010). Jawaharlal observed improvement in area of risk assessment in life insurance, improved underwriting practices and a changing role of intermediaries as a primary underwriter (U. Jawaharlal, 2010). Palande et al. observed change spreads across a vast canvas cover the following areas (a) Mindset, (2) Adequacy of Capital, (3) Personnel, (4) Market related policies, (5) Cost Consciousness, (6) Competitive Strength, (7) Technology in Use, (8) Accounting Practices, (9) Scale of Operations and (10) Global Integration (P. S. Palande, 2003).

Amlan Ghosh investigated the relationship between life insurance sector reforms and the overall development of life insurance business in recent years in India by applying the VAR–VECM econometric methodology. The VEC Granger causality test shows that the life insurance sector reforms caused the overall life insurance development in India (Ghosh A. , 2013). Garg and Verma stated that the customer driven market would result a lot of flexibilities and innovations in products, pricing,

[2] Chairman, Insurance Regulatory and Development Authority (10 June 2003 to 14 may 2008)
[3] G. N. Bajpai - Former Chairman, Securities and Exchange Board of India and LIC of India
[4] Professor – Dr. C D Deshmukh Chair, National Insurance Academy – Pune, India

distribution channels and communication mechanisms and observed no significant difference between the opinions of respondents at various hierarchies regarding variables of marketing mix and between the opinions of private and public company respondents regarding variables of marketing mix (Mahesh Chand Garg and Anju Verma , 2010). Bhavya observed India's Foreign Direct Investment (FDI) policy as gradually liberalised to make the market more investor friendly. (Bhavya Malhotra, 2014). Rajendran and Natarajan indicates the magnificent growth of Indian life insurance industry While comparing the efficiency and progressiveness of life insurance business in pre and post LPG arena. Jawaharlal and Rath observed shift from product centric enterprise to customer centric enterprise with the products being positioned as per the requirement of the customer with increasing complexities, regulatory changes, innovative technology and sluggish economy that have played a key role in reshaping dynamics of insurance industry (U Jawaharlal and Sarthak Kumar Rath, 2005). Based on the secondary data; Kshetrimayum investigated the assessment of deregulation with respect to Industry Scenario, Concentration, Efficiency, Productivity and Innovation in Indian life insurance industry. The secondary data was analysed with the help of statistical tools such as Herfindahl Hirschman Index (HHI), Entropy (E), and Data Envelopment Analysis (DEA) (Kshetrimayum Sobita Devi, 2011).

RESEARCH GAP:

If we scan the literature on the impact of liberalization on Indian life insurance industry since 1999 we find that few studies have tried to analyze the content of impact of liberalization by extracting change factors induced by the liberalization. Researchers have observed impact in terms of innovative products, Development of Distribution Channel, Technology Development, increased Penetration and Density, improved Service Quality, technological advancement, Growing Employment Opportunity, Increased Productivity etc. Majority of them have analysed the content on the basis of Policy Analysis, Document Analysis, and Statistical analysis of Public Records or Observation. Very few studies such as Silke Bumann, (2012), investigated relationship between financial liberalization and economic growth and found positive impact – Amlan Ghosh (2013), investigated the relationship between life insurance sector reforms and overall development of life insurance business in India by applying VAR – VECM econometric methodology - M C Garg and Anju Verma (2010), investigated no significant difference between the opinions of private and public company respondents regarding variables of marketing mix - Rajendran and Natarajan (2010), indicated the magnificent growth of Indian life insurance industry while comparing the efficiency and progressiveness of life insurance business in pre and post LPG arena. Kshetrimayum (2011), investigated the assessment of deregulation with respect to Industry Scenario, Concentration, Efficiency, Productivity and Innovation in Indian life insurance industry.

OBJECTIVES:

Indian insurance industry witnessed paradigm shift in post liberalization era. Liberalization induced some change factors across the industry that significantly contribute to transformation in this industry. Main purpose of this study is to facilitate the attempts to extract change factors induced by the liberalization of Indian life insurance industry.

SPECIFIC OBJECTIVES ARE AS UNDER:

(i) To Describe and illustrate brief overview of Exploratory factor analysis
(ii) To Extract Change factors induced by the Impact of Liberalization on Indian Life Insurance Industry.

RESEARCH METHODOLOGY:

The present study is concerned with the study of impact of liberalization on Indian life insurance industry. The present study is descriptive in nature. Scientific survey was conducted across the country with the help of questionnaire that include scaled questions. A Sample of 552 respondents has

addressed the questionnaire. Broader categories of respondent were Agents, Employees and Customers of LIC of India and Private Life Insurers. Data obtained through questionnaire is tabulated and analysed with the help of SPSS software and Reliability test and Exploratory Factor Analysis (Principal Component Method) would be conducted for the data reduction and extraction of the Factors.

EXPLORATORY FACTOR ANALYSIS:

Factor analysis is a multivariate statistical approach and important tool that can be used in the development, refinement, and evaluation of tests, scales, and measures (Williams et al, 2010). A factor analysis is a data reduction technique to summarize a number of original variables into a smaller set of composite dimensions, or factors. It is an important step in scale development and can be used to demonstrate construct validity of scale items (Anglim, 2007). In short factor analysis is a statistical approach that useful in data reduction by reducing variables that is capable of accounting for a large portion of the total variability in the items. Establishment of underlying dimensions and construct validity.

Principal component analysis is the most widely used method in extracting linear components (Factor). It determining a set of loadings (Values); leads to the estimation of the total communality. Communalities are the proportion of common variance within a variable.

The identity of each factor is determined after a review of which items correlate the highest with that factor. For the purpose of determining sample adequacy the test of Kaiser-Meyer-Olkin Measure of Sampling Adequacy needs to perform. When overall KMO value found to be unsatisfactory it is needed to check KMO values for individual variables on diagonal of the anti image correlation matrix. Principal Component Analysis based on the initial assumption that all variance is common; before extraction communalities are all 1, after extraction it reflects common variance. Eigenvalues (Kaiser, 1960) are another important criterion in determining factor structure. Eigenvalues indicate the amount of variance explained by each principal component or each factor. Cattell's Scree test (Cattell, 1966) is a visual exploration of a graphical representation of the eigenvalues. Rotation component matrix is a diagonal pattern matrix. Thus these are the criterion for factorability.

A successful result is one in which a few factors can explain a large portion of the total variability and those factors can be given a meaningful name using the assortment of items that correlate the highest with it.

CRITERION FOR FACTORABILITY:
THE CORRELATION MATRIX:

One approach to conduct principal component analysis to find out the inter correlation between variables. There may be two kinds of issues; first correlation between variables is too small and second correlation between variables is too high. If correlation between variable is not a high enough; remedy is to remove that variable from analysis. There is some thumb of rules regarding determining significant correlation; Tabachnick and Fidell recommended inspecting the correlation matrix (often termed Factorability of *R*) for correlation coefficients over 0.30. Hair et al. (1995) categorised these loadings using another rule of thumb as ±0.30=minimal, ±0.40=important, and ±.50=practically significant. In other words a factorability of 0.3 indicates that the factors account for approximately 30% relationship within the data, or in a practical sense, it would indicate that a third of the variables share too much variance, and hence becomes impractical to determine if the variables are correlated with each other or the dependent variable (multi co linearity).

Table - 5.2.1[5] indicates after fifth iteration that significant correlation between V28 and V34 is highest (.797); Correlation between V26 and V28 is lowest (0.318).

KAISER-MEYER-OLKIN (KMO) MEASURE OF SAMPLING ADEQUACY:

Before the extraction of the factors, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy should be used to assess the suitability of the respondent data for factor analysis. Another test include

[5] Refer Table – 5.1.1, Table-5.2.2, Table-5.2.3,Table-5.2.4, Table-5.2.5, Figure-5.2.1 in Appendices - 1

Bartlett's test of sphericity, it is another indication of the strength of the relationship among variables. Inter correlation can be checked by using Bartlett's test of spherity, which "tests the null hypothesis that the original correlation matrix is an identity matrix" (Field, 2009).
There is some thumb of rules for determining significance of Kaiser-Meyer Olkin measure of sampling adequacy and Bartlett's test of sphericity. Kaiser (1974) recommends a bare minimum of 0.5 and that values between 0.5 and 0.7 are mediocre, Values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb (Graeme D Hutcheson, Nick Sofroniou, 1999).
Table - 5.2.2 indicates after fifth iteration that the sample well within acceptable limits (KMO=.951). Table - 5.2.2 also indicates that Bartlett's test of Sphericity clearly indicates that significance level is a very small enough to reject the null hypothesis.

ANTI-IMAGE CORRELATION MATRIX:

Anti Image Matrices produce KMO values for individual variables on diagonal of the anti image correlation matrix. The values on the diagonal of this matrix should be greater than 0.5. Problematic variables contain the value less than 0.5 indicate unsatisfactory KMO for that variable and it should be excluded from the analysis. Anti Image Matrices is very useful for identifying problematic variables if the overall KMO is unsatisfactory. The off diagonal values represent the partial correlations between variables. Table-5.2.3 - The diagonal values contain the value > 0.5 in the Anti-Image Correlation Matrix. It indicates a good KMO values for individual variable therefore it suggests sampling adequacy.

COMMUNALITIES:

Communality is the proportion of common variance within a variable. Principal Component Analysis based on the initial assumption that all variance is common; before extraction communalities are all 1, after extraction it reflects common variance. Communalities indicate the degree to which the factors explain the variance of the variables. High communality indicates that the extracted components represent the variables well. If any communality is very low in a principal components extraction, you may need to extract another component. In a proper solution, two sets of communalities are provided, the initial set and the extracted set. Communalities are estimation of that part of the variability in each variable that is shared with others. If the communality is very low for an item, it suggests that it does not share much in common with the extracted components. This generally implies that it is unrelated to the other items in the set. It needs to exclude from the analysis; either to exclude it from any further analyses or to treat it as a standalone variable. Table 5.2.4 indicates that all values are > 0.5.

EIGENVALUES AND SCREE PLOT:

Eigenvalues (Kaiser, 1960) are another important criterion in determining factor structure. Eigenvalues indicate the amount of variance explained by each principal component or each factor. Output displays three parts (1) Initial eigenvalues; (2) Extraction sums of squared loading; (3) Rotation sums of squared loading; i.e. total variance explained after rotation. Rotation has the effect on optimization of the factor structure. Before rotation; factor 1 contains more variances than remaining factors.
Table 5.2.5 indicates that factor 1 contains higher loading of variance (52.835 per cent) than loading of factor 2 (9.307 Per cent) and factor 3 (5.754 Per cent). But after rotation; loading of factor 1 contains 26.886 Per cent variances, Factor 2 Contains 21.021 Per cent variance and factor 3 contains 19.989 Per cent variance.
Table-5.2.5 indicates the importance of each of the 18 principal components. Only the First 3 have Eigen values > 1.00, and together these explain over 67% of the total variability in the data. This leads us to the conclusion that three factor solutions will probably be adequate.

SCREE PLOT:

Ledesma and Valero-Mora noted that another popular approach is based on the Cattell's Scree test (Cattell, 1966), which involves the visual exploration of a graphical representation of the eigenvalues. In this method, the eigenvalues are presented in descending order and linked with a line. Afterwards,

the graph is examined to determine the point at which the last significant drop or break takes place—in other words, where the line levels off. The logic behind this method is that this point divides the important or major factors from the minor or trivial factors (Rubén Daniel Ledesma and Pedro Valero-Mora, 2007). Scree plot shows the eigenvalues on the y-axis and the number of factors on the x-axis. It always displays a downward curve[6].

Factor extraction on based on eigenvalues indicate that most variable have high loading on the most important factor and rest of the factors have small loading. It makes interpretation difficult and therefore a technique called factor rotation is used.

ROTATED COMPONENT MATRIX:

When Communalities show all the values > 0.5, we have another consideration for deciding on how many factors we can extract from our data; whether a variable might relate to more than one factor. Rotation maximises high item loadings and minimises low item loadings, therefore producing a more interpretable and simplified solution.(Williams et al, 2010)**.** There are two common rotation techniques: orthogonal rotation and oblique rotation. We have several methods to choose from both rotation options, for example, orthogonal Varimax / quartimax or oblique olbimin / promax. Orthogonal Varimax rotation first developed by Thompson is the most common rotational technique used in factor analysis, which produce factor structures that are uncorrelated (Williams et al, 2010). Regardless of which rotation method is used, the main objectives are to provide easier interpretation of results, and produce a solution that is more parsimonious (Hair et al, 1995).

Table-5.2.6 indicates factor structure; as there is no item with value < 0.5 so it need not to conduct an application of further iterations for excluding the lowest value among the values < 0.5.

INTERPRETATION OF THE FACTORS EXTRACTED AND DISCUSSION:

Interpretation of factor analysis could be significant by labelling the factor with appropriate name or theme that involves the examination of variable by their attribution to the factors. The labelling of factors is a subjective, theoretical, and inductive process (Pett et al, 2003). In other words, it is a search to find those factors that taken together explain the majority of the responses (Williams et al, 2010). Items that load strongest on a given factor are considered to be most "like" the construct that the factor represents and those items that have weak loadings are least" like" the potential construct. There are no definitive statistical tests in factor analysis to indicate whether an item is significant for the purposes of factor interpretation (Pett et al, 2003).

Table 6.0.1: Composition of the Factors identified in factor analysis

Factor	Item		Factor Loadings
1	Major changes in insurance products	V28_IoL	.833
	Product Innovation	V34_IoL	.812
	Competitive premium rates	V35_IoL	.727
	Responsive of marketing network	V31_IoL	.711
	Training initiatives	V27_IoL	.707
	Sales promotional activities	V30_IoL	.631
	Job opportunities	V25_IoL	.555
2	Satisfactory work culture	V26_IoL	.886
	Improved Customer services	V23_IoL	.872
	Responsive of servicing network	V32_IoL	.778
	Development of Alternative Distribution Channel	V33_IoL	.576

[6] Refer Figure 5.2.1 in Appendices - 1

	Customer centric Insurance Market	V22_IoL	.545
	Technology up gradation.	V29_IoL	.538
3	Public's awareness of the need for insurance	V20_IoL	.773
	Education on financial planning	V21_IoL	.770
	Easy market access	V19_IoL	.738
	Increased Competition	V18_IoL	.542
	More pronounced specialization.	V24_IoL	.507

A principal component analysis (PCA) was conducted on the 23 items with orthogonal rotation (Varimax). The Kaiser –Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .951 (Superb according to Field, 2009), and all KMO values for individual items were ≥ .894, which is well above the acceptable limit of 0.5 (Field, 2009). Bartlett's test of sphericity $x^{2} = 153 = 6872.56$, $p <$ .001, indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1 and combination explained 67.897 Per cent of variances. Given the large sample size and the convergence of scree plot and Kaiser's criterion on three components, this is the number of components that were retained in the final analysis. Table 5.2.5 shows the factor loadings after rotation[7].

As shown in the Table-6.0.1; 3 factors are extracted; they are composed of variables by their attribution to the factors.

1. The first factor contributes 26.886 per cent of variance and is composed of 7 variables. Factor 1 seems to represent the general worry about Marketing Mix. This factor is composed of 7 Ps; hence it is labelled with the name "Marketing Mix".

2. The second factor contributes 21.021 per cent of variance and is composed of 6 variables. Factor-2 relates to concerns about Service Quality. This factor is composed of the aspects of the speedy, precise and accurate service delivery. Hence it is labelled with the name "Service Quality".

3. The third factor contributes 19.989 per cent of variance and is composed of 5 variables. Content area of variables to this factor represents the concern about customer awareness, education and market access. It seems to represent awareness and education. Hence it is labelled with the name "Insurance Awareness".

Thus these three factors are contributing to measure the impact of liberalization on Indian life insurance industry.

Table 6.0.2 :Summary of Exploratory Factor Analysis Result for the SPSS Impact of Liberalization on Indian life Insurance Industry Questionnaire[8] (N=552)

		Component		
		Marketing Mix	**Service Quality**	**Awareness and Education**
V28_IoL	Major changes in insurance products	**0.833**	0.117	0.259
V34_IoL	Product Innovation	**0.812**	0.219	0.184
V35_IoL	Competitive premium rates	**0.727**	0.195	0.259
V31_IoL	Responsive of marketing network	**0.711**	0.269	0.278
V27_IoL	Training initiatives	**0.707**	0.200	0.382

[7] Reporting of PCA based on the reporting style suggested by Andy Field in his book "Discovering Statistics using SPSS" – Page No - 671
[8] Questionnaire – see Annexure - 1

V30_IoL	Sales promotional activities	**0.631**	0.393	0.355
V25_IoL	Job opportunities	**0.555**	0.132	0.553
V26_IoL	Satisfactory work culture	0.119	**0.886**	0.127
V23_IoL	Improved Customer services	0.131	**0.872**	0.201
V32_IoL	Responsive of servicing network	0.258	**0.778**	0.235
V33_IoL	Development of Alternative Channel	0.436	**0.576**	0.372
V22_IoL	Customer centric Insurance Market	0.365	**0.545**	0.459
V29_IoL	Technology up gradation.	0.484	**0.538**	0.165
V20_IoL	Public's awareness of the need for insurance	0.240	0.241	**0.773**
V21_IoL	Education on financial planning	0.338	0.147	**0.77**
V19_IoL	Easy market access	0.186	0.213	**0.738**
V18_IoL	Increased Competition	0.440	0.271	**0.542**
V24_IoL	More pronounced specialization.	0.437	0.362	**0.507**
Eigenvalues		**9.51**	**1.675**	**1.036**
% of Variance		**52.835**	**9.307**	**5.754**
α		**0.915**	**0.892**	**0.851**

Extraction Method: Principal Component Analysis. - Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

RELIABILITY ANALYSIS:
RELIABILITY OF SCALE:

One way to think of reliability is that other things being equal, a person should get the same score on a questionnaire if they complete it at two different points in time (Test-retest reliability). Another way to look at reliability is to say that two people who are the same in terms of the construct being measured, should get the same score. In stastical terms the usual way to look at reliability is based on the idea that individual items (or sets of Items) should produce results consistent with the overall questionnaire (Andy Field, 2006).

Cronbach's alpha is an approach to assess internal consistency; it measures a close relationship of set of items as a group. Cronbach's alpha is the average value of the reliability coefficients one would obtained for all possible combinations of items when split into two half-tests (Gliem, 2003).

Kline notes that although the generally accepted value of .8 appropriates for cognitive test such as intelligence test, for ability test a cut of point of .7 is more suitable (Paul Kline, 1999). George and Mallery (2003) provide the following rules of thumb: "Greater than **.9** = Excellent, Greater than **.8** = Good, Greater than **.7** = Acceptable, Greater than **.6** = Questionable, Greater than **.5** = Poor, and Less than **.5** = Unacceptable" (Darren George and Paul Mallery, 2011).

DETERMINING RELIABILITY IN TERMS OF MARKETING MIX:

Table7.1.1: Reliability Statistics

Variable	No. of Statements	Cronbach's alpha
Marketing Mix	7	0.915

Table-7.1.1 suggests the coefficient alpha for the 7 items is .915; according to thumb rule of George and Mallery (2003), > .9 = Excellent. This indicates all items are positively contributing to reliability, it also indicates, the construct is reliable.

DETERMINING RELIABILITY IN TERMS OF SERVICE QUALITY:

Table 7.2.1: Reliability Statistics

Variable	No. of Statements	Cronbach's alpha
Marketing Mix	6	0.892

Table-7.2.1 suggests the coefficient alpha for the 6 items is .892; according to thumb rule of George and Mallery (2003), > .8 – Good. This indicates all items are positively contributing to reliability, it also indicates, the construct is reliable.

DETERMINING RELIABILITY IN TERMS OF INSURANCE AWARENESS AND EDUCATION:

Table 7.3.1: Reliability Statistics

Variable	No. of Statements	Cronbach's alpha
Marketing Mix	5	0.851

Table-7.3.1 suggests the coefficient alpha for the 5 items is .851; according to thumb rule of George and Mallery (2003), > .8 – Good. This indicates all items are positively contributing to reliability, it also indicates, the construct is reliable.

DETERMINATION OF MODEL FIT:

Original correlation matrix compared with the reproduced correlation matrix. As estimated from the factor matrix and the residuals are compared and examined; most of the residuals in the reproduced correlation matrix are below 0.5, therefore it indicates acceptable model fit

CONCLUSION:

Indian life insurance industry felt 360 degree transition from open market competition in British era to state owned monopoly i.e. nationalization and there after liberalization of Indian insurance industry with the passage of IRDA regulations. Entry of private players has revolutionized the market. Some change factors have been induced by the liberalization and deregulation of Indian insurance industry. There is a substantial amount of debate regarding the impact of liberalization on Indian life insurance industry. Using data of 552 respondents from various categories such as Intermediaries, Employees, and Customers; by way of exploratory factor analysis three factors have been extracted, namely Marketing Mix, Service Quality and Insurance Awareness, these factors explains most the impact of liberalization on Indian life insurance industry. Further attempt was made to describe and illustrate brief and step by step overview of exploratory factor analysis (principal component analysis) by using SPSS.

SCOPE FOR THE FURTHER RESEARCH:

This research is purely exploratory in nature. Further Confirmatory Factor analysis (CFA) will help in substantiating the findings of study. Moreover one can examine two or more parametric dependent variables across one or more between group independent variable with Multivariate Analysis (MANOVA). For example there may be variance in perception regarding Impact of liberalization on Indian Life insurance industry in terms of Marketing Mix or Service Quality or Insurance Awareness among the people associate with insurance industry such as Intermediaries, Employees and Customers. One can employ multivariate analysis to test null hypothesis with respect of all the dependent variables in an experiment. Impact of liberalization and deregulation can be compared with special reference to LIC of India or any of private insurers in terms of Concentration, Productivity and Innovation. So definitely there is a scope for further research exists to enrich a body of knowledge.

REFERENCES:

[1] Amalan Ghosh. (2013). Life Insurance in India: the Relationship between Reforms and Growth in Business. *The Geneva Papers on Risk and Insurance - Issues and Practice* , 88 - 112.

[2] Andy Field. (2009). *Discovering Statistics Using SPSS* (3rd ed.). London: SAGE Publication Ltd.

[3] B G Tabachnick & L S Fidell. (2007). *Using Multivariate Statistics.* Boston: Pearson Education Inc.

[4] B. Manoharan. (2007). Performance of Life Insurance Business in India. In D. K. Ravichandran (Ed.), *Recent Trends in Insurance Sector in India* (pp. 87 - 98). Delhi: Ahijeet Publications.

[5] B. V. Ramana. (2007, February). Globalization Impact on Insurance. *Insurance Chronicle* , pp. 17 - 22.

[6] Babita Arora. (2003). Role of I.T. in L.I.C. *The Journal of Insurance Institute of India , 29*, 43 - 45.

[7] Bhavya Malhotra. (2014). Foreign Direct Investment: Impact on Indian Economy. *Global Journal of Business Management and Information Technology , 4* (1), 17 - 23.

[8] C S Rao. (2005). *Indian Insurance Industry: New Avenue for Growth.* Birla Institute of Management Technology. Greater Noida: Allied Publishers Private Limited.

[9] Chien-Chiang Lee & Chi-Hung Chang. (2012). Globalization and Convergence of International Life Insurance Markets. (T. G. Christophe Courbage, Ed.) *The Geneva Papers on Risk and Insurance - Issues and Practice* (37), 125-154.

[10] Cuizhen Zhang & Nong Zhu. (2010). *Determinants of the Development of Insurance in China under the Globalization.* Retrieved October 2011, from http://www.researchgate.net/publication: http://www.researchgate.net/publication/228557471_Determinants_of_the_Development_of_Insurance_in_China_under_the_Globalization

[11] Darren George and Paul Mallery. (2011). *SPSS for Windows Step by Step: A Simple Guide and Reference 18.0 Update* (11 ed.). Boston: Allyn & Bacon/Pearson.

[12] Esther Baur, U. B. (2001, May 1). *The economic importance of insurance in Central and Eastern Europe and the impact of globalisation and e-business.* Retrieved December 12, 2014, from www.unece.org: www.unece.org/fileadmin/DAM/trade/ctied5/trade0115e.doc

[13] G. N. Bajpai. (2006, March). Insurance Industry - India's Quest for Cover. (D. H. Sadhak, Ed.) *Bima Vidya* , pp. 4 - 11.

[14] G. Prabhakara. (2010, July - December). The Evolution of Life Insurance Industry in the last decade (2000 - 2010). (V. H. Pinto, Ed.) *The Journal - Insurance Institute of India , 36*, pp. 3 - 10.

[15] Graeme D Hutcheson & Nick Sofroniou. (1999). *The multivariate social scientist : introductory statistics using generalized linear models.* London: Sage Publication.

[16] H. Sadhak. (2005). Globalisation and Life Insurance. *Bimaquest - Vol. V Issue 1, January 2005* , 20.

[17] Hair et al. (1995). *Multivariate data analysis - - Hair J, Anderson RE, Tatham RL, Black WC* (4th ed.). New Jersey, USA: Prentice-Hall Inc.

[18] Harold D Skipper. (1997). *Foreign insurers in Emerging Markets: Issues and Concerns.* Washington, DC, USA: International Insurance Foundation.

[19] http://en.wikipedia.org. (2013, September 11). *http://en.wikipedia.org/wiki/History_of_globalization*. Retrieved October 15, 2013, from http://en.wikipedia.org: http://en.wikipedia.org/wiki/History_of_globalization

[20] J. Jayashree & N. Sumathi. (2009). Globalization of Insurance. In A. Vijayakumar, *Indian Insurance Sector in 21st Century - An Out look* (First ed., pp. 17 - 25). Delhi: Kalpaz Publication.

[21] Jeromy Anglim. (2007). *http://jeromyanglim.googlepages.com/Research Methods*. Retrieved December 25, 2013, from http://jeromyanglim.googlepages.com/: http://jeromyanglim.googlepages.com/Research Methods/Cluster Analysis & Factor Analysis

[22] Joseph A. Gliem & Rosemary R. Gliem. (2003, October 10). *https://scholarworks.iupui.edu/bitstream/handle*. Retrieved Oct- 5, 2013, from https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem%20&%20..?sequence=1

[23] K C Mishra & Simita Mishra. (2005). *The Game is Changing - Insurance Reloaded* (First ed.). Pune, Maharashtra, India: ICFAI University Press - Hydrabad.

[24] K. Dhevan & A. Shanmugasundaram. (2007). Present Trend in Insurance Industry in India. In

D. K. Ravichandran (Ed.), *Recent Trends in Insurance Sector in India* (pp. 59 - 66). Delhi: Ahijeet Publications.

[25] M. Kartikeyan. (2007). The Trend of Insurance Sector in India - An Analytical View. In D. K. Ravichandran (Ed.), *Recent Trends in Insurance Sector in India* (pp. 1 - 22). Delhi: Ahijeet Publications.

[26] M. Selvakumar & J. Vimal Priyan. (2010, January - June). Indian Life Insurance Industry Prospect for Private Sector. *The Journal - Insurance Institute of India* , 52 - 57.

[27] Mahesh Chand Garg & Anju Verma . (2010). An Empirical Analysis of Marketing Mix in Life Insurance industry in India. *IUP Journal of Management Research , 9* (2), 7 - 20.

[28] Manoj Kumar. (2004, October). Marketing and Distribution Channels in Bancassurance. *The Insurance Times* , pp. 44 - 50.

[29] Martina & P.Sairani. (2010). Life Insruance - A Privatized Market. *Pravartak - The Journal of Insurance and Risk management , 5* (2), 19 - 27.

[30] Mojmir Mrak (2000). *Globalization: Trends, Challenges and Opportunities for countries inTrasnsition.* Retrieved September 23, 2012, from www.unido.org: http /en/resources/publications /imported-publications/globalization-trends-challenges-and-opportunities-for-countries-in-transition.html

[31] N. Sumathi & J. Jayashree. (2009). The Study on Consumer Acceptance Level Towards Private Insurance and LIC. In A. Vijayakumar, *Indian Insurance Sector in 21st Century An Out look* (First ed., pp. 258 - 273). Delhi: Kalpaz Publication.

[32] Naren N. Joshi. (2005). *Indian Insurance - Issues, Challenges and Opportunities: The Rural Markets Hold the Key.* Greater Noida: Birla Institute of Management Technology.

[33] O. P. Dubey. (2005). *Indian Insurance Market Issues, Challenges, Opportunities and Strategies.* Greater Noida: Birla Institute of Management Technology.

[34] P. S. Palande, R. S. (2003). *Insurance in India - Changing Policies and Emerging Opportunities* (First ed.). New Delhi: Response Books - Sage Publication India Private Limited.

[35] Paul Kline. (1999). *Handbook of Psychological Testing.* London: Routledge.

[36] Pett et al. (2003). *Making Sense of Factor Analysis by Marjorie A. Pett, Nancy R. Lackey, John J. Sullivan.* California: Sage Publication Inc.

[37] Philip Arestis. (2005, June). *Financial Liberalization and the Relationship Between Finance and Growth.* Retrieved November 5, 2012, from www.landecon.cam.ac.uk: http://-/research/real-estate-and-urban-analysis/centres/ccepp/copy_of_ccepp-publications/wp05-05.pdf

[38] Pramod Pathak & Dr. Saumya Singh. (2007). Life Insurance Corporation - The Leader on the Backfoot. In N. P. Pal, *Insruance Theory and Practice* (Third ed., pp. 38 - 49). Dhanbad: Prentice Hall India Private Limited.

[39] R. Rajendran & B. Natarajan. (2010). The impact of liberalization, privatization, and globalization (LPG) on life insurance corporation of. *African Journal of Business Management , 4* (8), 1457 - 1463.

[40] Rakesh Agarwal. (2004, October). Bancassurance. *The Insurance Times* , pp. 19 - 26.

[41] Rubén Daniel Ledesma & Pedro Valero-Mora. (2007). Determining the Number of Factors to Retain in EFA: an easy-to use computer program for carrying out Parallel Analysis. *Practical Assessment, Research & Evaluation , 12* (2), 1 - 11.

[42] S Banumath & G Karunanithi. (2007). Term Insurance Schemes of LIC of India and Other Insurance Companies - A Comparative Study. In D. K. Ravichandran (Ed.), *Recent Trends in Insurance Sector in India* (pp. 25 - 31). Delhi: Ahijeet Publications.

[43] S. Chandirakala. (2010). The Role of Insurance Sector in Indian Economic Growth. *Pravartak - The Journal of Insurance and Risk Management , 5* (2), 28 - 32.

[44] Silke Bumann, N. H. (2012). *Financial liberalisation and economic growth: a meta-analysis.* London: Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre).

[45] T. Nagananthini. (2009). Life Insurance Corporation – The Leader on the Backfoot. In A. Vijayakumar, *Indian Insurance Sector in 21st Century An Out look* (pp. 148 - 169). Delhi: Kalpaz Publication.

[46] U Jawaharlal & Sarthak Kumar Rath. (2005, May - June). Customer Centricity in the Insurance industry. *Insurance Chronicle* , 20 - 24.
[47] U. Jawaharlal. (2010, July - December). Going with the Tide - Risk Assessment in Life Insurance. (V. H. Pinto, Ed.) *The Journal - Insurance Institute of India , 36*, pp. 11 - 14.
[48] V.G.Chari (2005, March) Insurance - A Relook at the Distribution Strategy. *Insurance Chronicle*,28 - 36
[49] V. K. Agarwal. (2002, March). Insured Expectation in a Liberalized Insurance Market. *The Insurance Times* , pp. 31 -34.
[50] Vivek Gupta. (2004, August). Insurance Industry: An Indian Perspective. *Insurance Chronicle*, 36 - 40.
[51] William L. Megginson, R. N. (1994). The Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis. *The Journal of Finance , 49* (2), 403 - 452.
[52] Williams et al. (2010). Exploratory factor analysis: A five-step guide for novices - Mr Brett Williams-Andrys Onsman-Ted Brown. *Journal of Emergency Primary Health Care (JEPHC) , 8* (3).
[53] www.business.mapsofindia.com. (2011, May 18). *http://business.mapsofindia.com/globalization /history.html*. Retrieved Oct 15, 2013, from www.business.mapsofindia.com:
[54] Xiaoling Hu, C. Z. (2009). Analyzing efficiency in the Chinese life insurance industry. *Management Research News , 32* (10), 905-920.
[55] Zuzana Brokešová, E. P. (2014). Determinants of Insurance Industry Development in Transition Economies: Empirical Analysis of Visegrad Group Data. (C. C.-E. Chieg, Ed.) *The Geneva Papers on Risk and Insurance—Issues and Practice* (38), 471 - 492.
