

Determinants of Investment Guidelines Compliance and Its Impact on the Profitability of Indian Life Insurers

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Abstract

The insurance regulatory and supervisory infrastructure in India is relatively well developed. The apex body, Insurance Regulatory Development Authority, (IRDA) has a clear mandate and is a leader among emerging markets. This is evidenced in the life insurance asset under management to GDP figure at 16.8 percent, which places India along with a number of industrial countries, although underlying drivers vary. With a growth in life premium since 2005, India is a clear outperformer in terms of expected life insurance penetration. Since the introduction of IRDA and the establishment of its regulatory mechanism pertaining to the overall functioning of the insurance industry from the year 2000, twelve years have passed. There arises the need for the regulatory apparatus to move forward in order to oversee compliance of these regulations. As a percentage of total income, the investment income constituted 37.62 per cent in case of Life Insurance Corporation of India (LICI - public sector) and 36.27 per cent for the private life insurers for the year 2012-13. In this context, an empirical study on the determinants of investment guidelines compliance and its impact on the profitability of Indian life insurers is significant. A multiple linear regression model is used and the sample includes all the 23 life insurers (1 public and 22 private) for six financial years, viz., 2005-06 to 2010-11. Solvency, Asset Quality Linked, Return on Assets, Return on Equity and Insurance Leverage are the determinants of investment guidelines compliance of life insurers. Level of investment guidelines compliance affects profitability in terms of Return on Equity of Indian life insurers.

Keywords: IRDA, Investment Guidelines, Investment Guidelines Index (IGI), Indian Life Insurers

JEL Classification: G 22

I. Introduction

Insurance is a big opportunity in a country like India with a large population and untapped potential. In a period of less than half a century, the Indian insurance sector has come a full circle from being an open competitive market (pre 1956), to complete nationalization (1956-2000) and then back to a liberalized market (post 2000). The Indian life insurance industry was characterized by the presence of only public sector players with the life insurance side being a monolithic structure, viz., the Life Insurance Corporation of India (LICI), devoid of even little competition. The process of re-opening of the Indian insurance sector had begun in the early 1990s and following the recommendations of the Malhotra Committee report a hybrid model of privatization with an efficient regulatory mechanism was adopted which led to the constitution of Insurance Regulatory Development Authority (hereinafter IRDA) in 1999, an autonomous

body to regulate and develop the Indian insurance industry. There are twenty-four life insurers including the public insurer LIC operating in India in the year 2011-12. Several Indian private players apart from the LIC have completed ten years of existence.

II. Insurance Market – Global and Indian Scenario

Regulators, policy makers and the industry undertake regulatory initiatives that actively contribute to the development of global life insurers. The International Association of Insurance Supervisors (IAIS) supports various insurance supervisors in meeting their regulatory objectives and contributes to the international regulatory agenda by setting out a series of Insurance Core Principles (ICP) that provides high level frameworks to guide the development of solvency regimes. In the United States, the National Association of Insurance Commissioners (NAIC), the standard setting and regulatory support organization created and governed by the chief insurance regulators from the states,¹ is following a program to review and consider solvency standards developed under the NAIC's Solvency Modernization Initiative (SMI). The Dodd-Frank Act (formally the Dodd-Frank Wall Street Reform and Consumer Protection Act) was enacted in 2010 to reduce the risk of another financial crisis and places additional regulation of financial services sector in the hands of the federal government.² The European Union's insurer solvency regime was put in place in the 1970's and changes made to the regime in 2002 were named as Solvency I. As the framework was rule based and did not fundamentally change a more wide-ranging reform was required. The Solvency II Directive is a new regulatory framework for the European insurance industry that adopts a more dynamic risk-based approach and implements a non-zero failure regime, i.e., there is a 0.5 percent probability of failure.³ Solvency II sets out to establish its new set of capital requirements, valuation techniques and governance and reporting standards to replace the existing and outdated Solvency I requirements. On 22nd April 2009, the European Parliament approved the Solvency II framework directive to become effective from 1st January, 2013. On 2nd October 2013, the European Commission proposed a second Quick Fix Directive postponing the application date of the Solvency II Directive to 1st January 2016.⁴

In the backdrop of the new industrial policy and consistent with reforms undertaken in other segments of the financial sector, the Government of India set up in 1993 a high powered committee headed by Mr. R. N. Malhotra to examine the structure of the insurance industry. Reforms in the insurance sector were undertaken in 1999 as a follow up of the recommendations of Committee and it was felt that the Insurance Regulatory and Development Authority (herein after IRDA) would play a vital role for the regulation and development of insurance business. Accordingly, the Insurance Act 1938 was reviewed and revised with reference to the Law Commission of India. With the passage of Insurance Regulatory and Development Authority Act in 1999, the Government's monopoly in the insurance sector ended. The Insurance Regulatory and Development Authority (IRDA) was constituted as an autonomous body to regulate and develop the insurance industry. The IRDA opened up the market in August 2000 with the invitation for application for registrations including foreign companies up to an ownership of 26%.⁵ Presently, the insurance regulatory and supervisory infrastructure in India is relatively well developed. IRDA has a clear mandate and is a leader among emerging markets.⁶ There are twenty-four life insurers including the public insurer, LIC, operating in India as on September 2013. Several Indian private players apart from the LIC have completed ten years of existence.

III. Life Insurance Investments of Indian Life Insurers

Life insurance funds consist of assets under Life Fund, Pension and Annuity Fund, Group

excluding Pension and Annuity Fund and Unit Linked Fund. The insurance regulatory and supervisory infrastructure in India is relatively well developed. The apex body, Insurance Regulatory Development Authority, (IRDA) has a clear mandate and is a leader among emerging markets. This is evidenced in the life insurance asset under management to GDP figure at 16.8 percent, which places India along with a number of industrial countries, although underlying drivers vary. With a growth in life premium since 2005, India is a clear outperformer in terms of expected life insurance penetration. Since the introduction of IRDA and the establishment of its regulatory mechanism pertaining to the overall functioning of the insurance industry from the year 2000, twelve years have passed. There arises the need for the regulatory apparatus to move forward in order to oversee compliance of these regulations.

The investment income being a large proportion of the total income is largely influenced by the pattern in which the investments are made and on the performance of different funds viz., Life Fund, Pension and Annuity Fund, Group excluding Pension and Annuity Fund and Unit Linked Fund. As a percentage of total income, the investment income constituted 37.62 per cent in case of Life Insurance Corporation of India (LICI - public sector) and 36.27 per cent for the private life insurers for the year 2012-13. The financial performance of the life insurers is influenced by the investment income. The interest of the policyholders is well protected only if the premium collected from them is prudently invested. In this context, the apex body, IRDA, has from time to time made suitable amendments in the IRDA act with respect to investments made by the life insurers. Accordingly, the current regulatory provisions on investments of insurance companies prescribe the manner in which the funds can be invested. Also, the authority monitors the investment portfolio of insurance companies on a quarterly basis to make sure they follow the investment norms. In this context, an empirical study on the determinants of investment guidelines compliance and its impact on the profitability of Indian life insurers is significant.

IV. Review of Literature

A few relevant research studies on the disclosures made by insurers are presented below:

Hershbarger, R. A., & Miller, R. K. (1982)⁷ evaluated the investment performance of minority controlled U.S. life insurers in relationship to the performance of other life insurers based on comparisons of: 1) net yields on total investments, stocks, bonds, mortgages and real estate; and 2) the investment expense ratio. The study found that the investment performance as measured by average net yields on total investments of the minority controlled life insurers was significantly below that of the leading and random companies studied. **Pritchett, T. S. (1998)**⁸ examined whether it is feasible for a financial planner to use history in determining a range of credible investment return assumptions for life insurance sales illustrations. While mortality, expenses, and lapse rates also affect projections, this study is limited to the influence of investment returns alone. The study concluded that there was no scientific methodology to exactly pinpoint future performance because of unknown future factors; perhaps it was projected rates of return for the long run that should be used as compound rates of return in projections of life insurance cash values.

Chen & Wong (2004)⁹ focused on the solvency of the general and life insurers in Asia using firm data and macro data separately. With the exception of Japan, failures of insurers were non-existent in Singapore, Malaysia and Taiwan. For general insurers, firm size and investment performance significantly affected their financial performance. For life and health insurers, firm size and change in asset mix were the two factors consistently affecting their financial health in all the four economies. Assets of life insurers were invested into the products like bonds, stocks

and loans. Any drastic change in the asset mix will change the risk exposure of life insurers and affect their financial stability. **Li, W. D. (2006)**¹⁰ described the particular investment and legal constraints on the life insurance investment portfolio in China and investigates the specialist problem. The author suggested the specialists and risk management strategies that can be implemented in China with immediate effect, taking into consideration data deficiency and the difficulty of contract enforcement in China.

Hsiao, S.-H., & Su, S.-H. (2006)¹¹ determined the capital investment efficiency based on the Data Envelopment Analysis (DEA) results and Malmquist Productivity Index (MPI). Some hypotheses were created to test if there is a statistically significant difference among the original domestic life insurers, new entrant domestic life insurers and foreign branches of life insurers. Results expressed that there was no significant difference among those three groups for MPI. Nan Shan and Hontai insurance companies were found to have an efficient investment performance for the overall efficiency and scale efficiency. In addition to Nan Shan and Hontai, Cathay, American and Manu life insurers were efficient for pure technical efficiency. **Shiu Y.-M. (2009)**¹² investigated the determinants of investment performance proxied by investment yield for U.K. life insurers during 1986–1999. Three models using ordinary least squares (OLS) regression analysis and two panel data models including one-factor fixed-effects (FE) and random-effects (RE) model were estimated. Investment yield was positively related to interest rate level, but negatively related to interest rate changes, reinsurance dependence, assets held to cover linked liabilities and instability of asset structure.

Baranoff, E. G., & Sager, T. W. (2009)¹³ investigated the impact of asset allocation strategies on the investment performance of life insurers in the U.S. Three novel quantitative indices of static/dynamic strategies computed from portfolio allocations reported in the firms' annual statement data were defined to represent important dimensions of the active/passive spectrum of investment strategies. Using cluster analysis the population of life insurers was partitioned into three groups characterised by generally having static (passive) dynamic (active) and mixed asset allocation strategies, respectively. The study found that the most active cluster enjoyed the greatest relative performance even after controlling for allocations among asset classes.

Charumathi, B., Nithya, K., & Agarwal, P. (2012)¹⁴ analysed whether the Indian life insurers have complied with the IRDA regulations relating to investment norms for pension & annuity fund and group excluding pension and annuity fund, besides analysing the investment metrics, namely, total investment, total investment income and Return on Investment (ROI). All the participating life insurers both public and private have 100% compliance of the pension, annuity & group fund investment norms except for Future Generali Life Insurer. **Charumathi, B., Nithya, K., & Agarwal, P. (2011)**¹⁵ investigated whether the Indian life insurers have complied with the IRDA regulations relating to investment norms for life fund besides analysing the investment metrics, namely, total investment, total investment income and Return on Investment (ROI). The study found that LIC has not complied with the investment norm regarding infrastructure investments during the study period. **Charumathi, B., & Nithya, K. (2011)**¹⁶ examined whether the Indian general insurers have complied the IRDA guidelines related with investment norms besides analysing the trends of total investment, total investment income and Return on Investment (ROI). There was no 100% compliance of investment norms for the Indian general insurers during the study period.

Some of the earlier studies analysed the investment performance of life insurers. Subsequently, research works concentrated on capital investment efficiency and effect of legal constraints on

life insurers' investment portfolio. Studies also analysed the determinants of investment performance. Studies in the Indian context analysed the compliance level of life and general insurers for investment norms. There has been a dearth of studies in the Indian context that have analysed the level of compliance of investment guidelines, determinants and its impact on the profitability of life insurers. Hence, this study tried to close this research gap.

V. Objectives of the Study

The objectives of the study are:

- 1) To study the level of compliance for investment guidelines by Indian life insurers.
- 2) To study the determinants of level of compliance for investment guidelines by Indian life insurers.
- 3) To study the impact of level of compliance for investment guidelines on the profitability of Indian life insurers.

VI. Research Methodology

This is an empirical study. The sample for this study includes all the Indian life insurers both public (1) and private (22) numbering 23 (Table - 1). The abbreviations used and the names of Indian Life Insurers are given in Appendix. It has taken data pertaining to 6 financial years, viz., 2005-06 to 2010-11. The required data were taken from the IRDA data base, IRDA annual reports and public disclosures of the respective life insurance companies. This study employs cross-section data multiple linear regression model.

Table – 1 Sample Size

Year	No. of companies
2005-06	15
2006-07	16
2007-08	18
2008-09	22
2009-10	23
2010-11	23

Source: IRDA Annual reports 2005-06 to 2009-11

Variables of Study

The following variables are used in the study:

- I. **Variables for constructing Investment Guidelines Index (IGI):** The variables considered for constructing the Investment Guidelines Index (IGI) were drawn extensively from the IRDA regulatory framework. IGI consists of three variables, viz., life fund investments, pension annuity group fund investments and unit linked fund investments. An original Investment Guidelines Index (IGI) was constructed based on these variables as shown in Table 2.

Table – 2 Investment Guidelines Index (IGI)

S. No	Variables	Score	Score %
	<i>Compliance of regulations regarding</i>		
1.	Life Fund Investments	1	100
2.	Pension Annuity Group Fund Investments	1	100
3.	Unit Linked Fund Investments	1	100
	Investment Guidelines Index (IGI)	3	100

Note: Constructed by researchers based on IRDA regulatory framework

II. Variables for studying the determinants of level of compliance for investment guidelines:

The following profitability variables capturing the returns from investment and underwriting activities of life insurers are used in the study:

- 1) **Net profit ratio (NPR):** It is the ratio of Expenses to Net premium.
- 2) **Return on Equity ratio (ROE):** It is the ratio of Net income before taxes to Capital and surplus.
- 3) **Return on Assets ratio (ROA):** It is the ratio of Net income before taxes to Total Admitted Assets.
- 4) **Return on Sales ratio (ROS):** It is the ratio of Net income before taxes to Net Premiums written.

The compliance for investment guidelines of life insurers is affected by the size of the firm. This study used the following size variables:

- 5) **Total Admitted Assets (LnTAA):** It implies the eligible assets (Total of Policyholders' and Shareholder's admitted assets) available for the purpose of determining the solvency ratio of an insurer. The natural logarithm of total admitted assets is used in this study as one of the control variables.
- 6) **Net Premium (LnNP):** It is the premium earned by a life insurance company after deducting the reinsurance ceded. The natural logarithm of net premium is used in this study as one of the control variables.
- 7) **Net Worth (LnNW):** It is the summation of equity share capital & surplus that decides the capital base of a life insurer. The natural logarithm of net worth is used in this study as one of the control variables

The following performance indicators are also used for analysing the determinants of level of compliance for investment guidelines and its impact on profitability:

- 8) **Insurance Leverage (LEV):** It measures an insurer's policy related liability in relationship to the resources available. The ratio compares an insurer's contractual reserves with its capital and/or surplus.
- 9) **Total Investment Performance (IP):** It measures the performance of total investment assets (both linked & non-linked).
- 10) **Asset Quality Non-Linked ratio (AQNL):** It reveals the potential volatility in the returns on assets held by the life insurers. It is the ratio of Equities to Total Non-Linked investments.

- 11) Reinsurance and Actuarial Issues ratio (REAI):** It shows the risk retention policy adopted by insurers. It is the ratio of Net Premium to Gross Premium.
- 12) Non-Linked Investment Performance ratio (IPNL):** It measures the performance of non-linked investment assets.
- 13) Linked Investment Performance ratio (IPL):** It measures the performance of linked investment assets.
- 14) Management Soundness ratio (MS):** It measures the efficiency of operations undertaken by the Indian life insurers. It is the ratio of Operating Expenses to Gross Premium.
- 15) Asset Quality Linked ratio (AQL):** It shows the percentage of total linked funds invested in equity and indicates the investment risk borne by policyholders. It is the ratio of Equities to Total Linked Investments.
- 16) Solvency (SOL):** It is the excess of the value of assets over the amount of liabilities referred to as a Required Solvency Margin. It is the ratio of Available Solvency Margin to Required Solvency Margin.
- 17) Liquidity (LIQ):** It gives an indication of the capability of the insurers to pay outstanding claims out of their cash balance. It is the ratio of Outstanding Claims to Cash and Bank Balance.
- 18) Lapsation (LAP):** As policy lapses are costly to insurers and are negatively related to life insurance policy performance, this study has measured the lapse rates of individual non-linked life insurance policies. It is the Lapsation rate of individual non-linked life insurance policies.
- 19) Premium Growth (PG):** It gives the rate of market penetration based on the growth of premium volume. It is measured as change in New Premium (First year Premium + Single Premium).
- 20) Underwriting Performance (UWP):** It measures the adequacy, or otherwise, of insurers' underwriting operations and the underwriting risk depends on the risk appetite of the life insurers. It is the ratio of Benefits Paid to Net Premium.
- 21) Capital Position (CAP):** It is an indicator of capital adequacy of life insurers and demonstrates the capital plus reserves and surplus needed to support one unit of the mathematical reserve. It is the ratio of Capital + Reserves & Surplus to Total Mathematical Reserves.

The variables used and the formulae are given in Table 3.

Table – 3 Variables chosen for the study

<i>Variables</i>	<i>Formulae</i>
Investment Guidelines Index (IGI)	Index scores measuring the level of compliance for investment guidelines of life insurers
Net Profit Ratio (NPR)	Expenses/Net Premium
Return on Equity (ROE)	Net income before taxes /Capital and surplus
Return on Assets (ROA)	Net income before taxes/Total Admitted Assets
Return on Sales (ROS)	Net income before taxes/Net Premiums Written

<i>Variables</i>	<i>Formulae</i>
Total Admitted Assets (LnTAA)	Natural Logarithm of Total Admitted Assets
Net Premium (LnNP)	Natural Logarithm of Net Premium
Net Worth (LnNW)	Natural Logarithm of Net Worth
Asset Quality Non-Linked (AQNL)	Equities/Total Non-Linked investments
Reinsurance and Actuarial Issues (REAI)	Net Premium/Gross Premium
Non-linked Investment Performance (IPNL)	Non-Linked Investment income/ Non-Linked Investment assets
Linked Investment Performance (IPL)	Linked Investment income/ Linked Investment assets
Total Investment Performance (IP)	Total Investment income/ Total Investment assets
Management Soundness (MS)	Operating Expenses/Gross Premium
Asset Quality Linked (AQL)	Equities/Total Linked Investments
Solvency (SOL)	Available Solvency Margin/ Required Solvency Margin
Insurance Leverage (LEV)	Total Mathematical Reserves/ (Capital + Surplus)
Liquidity (LIQ)	Outstanding claims/Cash and Bank balances
Lapsation (LAP)	Lapses during year/Arithmetic mean of the business in force at the beginning and at the end of the year
Premium Growth (PG)	Change in New Premium (First year Premium + Single Premium)
Underwriting Performance (UWP)	Benefits paid / Net Premium
Capital Position (CAP)	(Capital +Reserves & Surplus)/ Total Mathematical Reserves

Note: Compiled by the researcher based on earlier studies

Models Used

Following multiple regression models are used in this study:

- 1) To study the determinants of level of compliance for investment guidelines:

Model 1:

$$IGI = \beta_0 + \beta_1 \text{LnTAA} + \beta_2 \text{SOL} + \beta_3 \text{AQL} + \beta_4 \text{ROA} + \beta_5 \text{ROE} + \beta_6 \text{CAP} + \beta_7 \text{PG} + \beta_8 \text{LEV} + \beta_9 \text{IP} + \epsilon_i$$

- 2) To study the impact of level of public disclosure on profitability:

Model 1:

$$\text{NPR} = \beta_0 + \beta_1 \text{IGI} + \beta_2 \text{IPL} + \beta_3 \text{IP} + \beta_4 \text{SOL} + \beta_5 \text{AQNL} + \beta_6 \text{REAI} + \beta_7 \text{LAP} + \beta_8 \text{LEV} + \beta_9 \text{UWP} + \beta_{10} \text{PG} + \beta_{11} \text{LNTAA} + \epsilon_i$$

Model 2:

$$\text{ROE} = \beta_0 + \beta_1 \text{IGI} + \beta_2 \text{IPL} + \beta_3 \text{IP} + \beta_4 \text{MS} + \beta_5 \text{AQL} + \beta_6 \text{REAI} + \beta_7 \text{LIQ} + \beta_8 \text{LAP} + \beta_9 \text{LnNP} + \epsilon_i$$

Model 3:

$$ROA = \beta_0 + \beta_1 IGI + \beta_2 IPL + \beta_3 IP + \beta_4 CAP + \beta_5 AQL + \beta_6 LAP + \beta_7 UWP + \beta_8 LnTAA + \varepsilon_i$$

Model 4:

$$ROS = \beta_0 + \beta_1 IGI + \beta_2 IPNL + \beta_3 IPL + \beta_4 SOL + \beta_5 AQL + \beta_6 LIQ + \beta_7 LAP + \beta_8 UWP + \beta_9 PG + \beta_{10} LnNW + \varepsilon_i$$

VII. Hypotheses

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

- 1) To measure the level of compliance for investment guidelines in Indian life insurance industry
 - H₀₁: During the study period, the Indian life insurers have not complied with all the IRDA regulations regarding investment guidelines (using IGI).
 - H₀₂: During the study period, there is no significant
 - H_{02a}: company-wise difference
 - H_{02b}: year-wise difference
 - H_{02c}: variable-wise difference
 - H_{02d}: ownership-wise difference in compliance for Investment Guidelines Index (IGI) among the Indian life insurers.
- 2) To study the determinants of level of compliance for investment guidelines:
 - H₀₃: There is no significant relationship between the level of compliance for investment guidelines (using IGI) and
 - H_{03a}: Total Admitted Assets (LnTAA) - Size indicator
 - H_{03b}: Solvency (SOL)
 - H_{03c}: Asset Quality Linked (AQL)
 - H_{03d}: Return on Assets (ROA)
 - H_{03e}: Return on Equity (ROE)
 - H_{03f}: Capital Position (CAP)
 - H_{03g}: Premium Growth (PG)
 - H_{03h}: Insurance Leverage (LEV)
 - H_{03i}: Total Investment Performance (IP).
- 3) To study the impact of level of public disclosure on profitability:
 - H₀₄: Level of public disclosure (using IGI) does not influence Net Profit of Indian life insurers
 - H₀₅: Level of public disclosure (using IGI) does not influence Return on Equity of Indian life insurers
 - H₀₆: Level of public disclosure (using IGI) does not influence Return on Assets of Indian life insurers
 - H₀₇: Level of public disclosure (using IGI) does not influence Return on Sales of Indian life insurers

VIII. Results And Discussion

1) To measure the level of compliance for investment guidelines in Indian life insurance industry

H_{01} : During the study period, the Indian life insurers have not complied with all the IRDA regulations regarding investment guidelines (using IGI).

Table 4 shows scores obtained by Indian life insurers for Investment Guidelines Index (IGI). It ranges from a minimum of 50% (Reliance Life Insurance Company, Future Generali India Life Insurance Company and IndiaFirst Life Insurance Company) to a maximum of 100%. The highest mean value of 97.78 was found in 2005-06 and SD of 13.98 in 2008-09.

Chi Square Test is applied to check the scores of each life insurer with its benchmark score. The mean score in each year is considered as benchmark score. In 2006-07 all the life insurers have complied with all the investment guidelines. As the p-values 0.001 and 0.000 are lesser than 0.05, the Null hypothesis, H_{01} , is rejected at 1% level of significance for 2005-06, 2007-08, 2008-09, 2009-10 and 2010-11. Thus, during the study period, the Indian life insurers have complied with the IRDA regulations regarding investment guidelines (using IGI).

Table – 4: Level of Regulatory Compliance for Investment Guidelines (using IGI) during 2005-06 to 2010-11 (%)

S. No	Com	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
1	Aviva	100	100	100	100	100	100
2	Bajaj	100	100	100	100	100	100
3	Birla	100	100	100	100	100	100
4	HDFC	100	100	100	100	100	100
5	ICICI	100	100	100	100	100	100
6	ING	100	100	100	100	100	100
7	Max	100	100	100	100	100	100
8	Met	100	100	100	100	100	100
9	Kotak	100	100	100	100	100	100
10	Rel	100	100	100	50	100	100
11	Saha	100	100	100	100	100	100
12	SBI	100	100	100	100	100	100
13	Shri	100	100	100	100	100	100
14	TATA	100	100	100	100	100	100
15	LICI	67	100	67	67	67	67
16	Bharti	NE	100	100	100	100	100
17	Future	NE	NE	50	100	100	100
18	IDBI	NE	NE	100	67	100	67
19	Aegon	NE	NE	NE	100	100	100
20	Canara	NE	NE	NE	100	100	100
21	DLF	NE	NE	NE	100	100	100
22	Star	NE	NE	NE	100	100	67

S. No	Com	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
23	India	NE	NE	NE	NE	50	100
	N	15	16	18	22	23	23
	Minimum	67	100	50	50	50	67
	Maximum	100	100	100	100	100	100
	Mean	97.78	100	95.37	94.70	96.38	95.65
	Std. Deviation	8.61	0	13.77	13.98	12.26	11.48
	Chi-Square	11.267	-	25.000	27.909	34.783	12.565
	Df	1	-	2	2	2	1
	Asymp. Sig.	.001	-	.000	.000	.000	.000

Note: 1) Scores calculated using disclosure on IGI. 2) Results computed using SPSS. 3) NE-Not in Existence. 4) "-" denotes all variables are constant

H_{02} : During the Study Period, there is no significant

H_{02a} : company-wise difference

H_{02b} : year-wise difference

H_{02c} : variable-wise difference

H_{02d} : ownership-wise difference in compliance for Investment Guidelines Index (IGI) among the Indian life insurers.

Table – 5: Analysis of Variance for Investment Guidelines Index (IGI)

Company-wise					
Source of Variation	SS	df	MS	F	p-value
Between Companies	6918.213	22	314.464	3.702	.000
Within Companies	7985.630	94	84.954		
Total	14903.842	116			
Year-wise					
Source of Variation	SS	df	MS	F	p-value
Between Years	331.383	5	66.277	.505	.772
Within Years	14572.459	111	131.283		
Total	14903.842	116			
Variable-wise					
Source of Variation	SS	df	MS	F	p-value
Between Variables	17606.838	2	8803.419	10.888	.000
Within Variables	281367.521	348	808.527		
Total	298974.359	350			

Ownership-wise					
Source of Variation	SS	df	MS	F	p-value
Between Groups	3708.379	1	3708.379	38.093	.000
Within Groups	11195.464	115	97.352		
Total	14903.842	116			

Note: Results computed using SPSS 17.0

Table 5 gives the results of ANOVA test for Investment Guidelines Index (IGI). As the p-values are less than 0.05, the Null Hypotheses, H_{02a} , H_{02c} and H_{02d} , are rejected at 1% level of significance. Thus, during the study period, there are significant company-wise, variable-wise and ownership-wise differences in Investment Guidelines Index (IGI) among the Indian life insurers. As the p-value is more than 0.05, the Null Hypothesis, H_{02b} , is accepted. Hence, during the study period, there is no significant year-wise difference in Investment Guidelines Index (IGI) among the Indian life insurers.

Table 6 shows the descriptive statistics like, Minimum, Maximum, Mean and SD of Size, performance indicators & level of compliance for investment guidelines (in terms of IGI) of Indian life insurers for the study period of 6 years from 2005-06 to 2010-11.

Table – 6 Descriptive Statistics – Variables of Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
IGI	117	.821429	1.000000	.97298738	.035294433
NPR	117	.119420	5.849029E1	1.20931434E0	5.568540483
ROE	117	-1.643714E0	1.095355	-1.00289214E-1	.404820336
ROA	117	-1.261922E0	.509649	-8.92710677E-2	.212983594
ROS	117	-5.036494E1	.352275	-7.48509756E-1	4.808953121
LnTAA	117	7.247793	1.857688E1	1.28252150E1	2.176329751
LnNP	117	4.036715	2.143304E1	1.26962580E1	3.008150093
LnNW	117	9.430439	1.251570E1	1.10209205E1	.864015890
AQNL	114	.000000	.216506	.04536530	.063265088
REAI	117	.227506	1.010559	.98803574	.071151703
IPNL	117	.013631	1.256023E1	.17176850	1.155319970
IPL	114	-.319443	.495727	.06049860	.131303011
MS	117	.055435	1.329057E1	.71891210	1.964508018
AQL	114	.000000	3.742783	.50560119	.369682249
SOL	117	1.300000	7.459993	2.78998959E0	1.279982993
LIQ	117	.000000	.609975	.10632998	.134433185
LAP	116	.000000	.810000	.21836207	.179874081
PG	108	-.334918	5.923670E1	1.88037397E0	6.641073865
UWP	112	-.006510	.684852	.12828973	.144996484
CAP	115	.001026	3.478518E2	6.04402252E0	3.877233339E1
Valid N (listwise)	105				

Note: Results obtained by using SPSS 17.0.

2) To study the determinants of level of compliance for investment guidelines:

H₀₃: There is no significant relationship between the level of compliance for investment guidelines (using IGI) and

H_{03a}: Total Admitted Assets (LnTAA) - Size indicator

H_{03b}: Solvency (SOL)

H_{03c}: Asset Quality Linked (AQL)

H_{03d}: Return on Assets (ROA)

H_{03e}: Return on Equity (ROE)

H_{03f}: Capital Position (CAP)

H_{03g}: Premium Growth (PG)

H_{03h}: Insurance Leverage (LEV)

H_{03i}: Total Investment Performance (IP).

Model 1:

$$IGI = \beta_0 + \beta_1 \text{LnTAA} + \beta_2 \text{SOL} + \beta_3 \text{AQL} + \beta_4 \text{ROA} + \beta_5 \text{ROE} + \beta_6 \text{CAP} + \beta_7 \text{PG} + \beta_8 \text{LEV} + \beta_9 \text{IP} + \varepsilon_i$$

Table – 7: Regression Results - Determinants of Level of Regulatory Compliance for Investment Guidelines (using IGI)

Model Summary						
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>	<i>Durbin-Watson</i>	
1	.758 ^a	.574	.535	.061867817	1.987	
Analysis of Variance						
<i>Model</i>	<i>SS</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	
1 Regression	.496	9	.055	14.399	.000 ^a	
Residual	.367	96	.004			
Total	.863	105				
Regression Coefficient						
<i>Model</i>	<i>Unstandardized Coefficients</i>	<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>	<i>Collinearity Statistics</i>	
<i>Model</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		<i>Tolerance</i>	<i>VIF</i>
(Constant)	1.020	.071		14.335	.000	
LnTAA	.005	.005	.111	.962	.339	3.028
SOL	-.016	.005	-.220	-3.036	.003*	1.186
AQL	-.073	.017	-.300	-4.357	.000*	1.068
ROA	-.074	.044	-.176	-1.670	.098***	2.506
ROE	.071	.024	.329	2.937	.004*	2.822
CAP	-.002	.008	-.022	-.229	.819	2.137

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
PG	.000	.001	.021	.255	.799	.665	1.503
LEV	.000	.000	-.906	-7.140	.000*	.275	3.630
IP	.009	.006	.101	1.384	.169	.840	1.191

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.66953635	1.04424655E0	.97484277	.068731183	106
Residual	-4.588106275E-1	.182215586	-1.243764002E-16	.059156948	106
Std. Predicted Value	-4.442	1.010	.000	1.000	106
Std. Residual	-7.416	2.945	.000	.956	106

a. Predictors: (Constant), IP, AQL, ROA, SOL, PG, LEV, CAP, ROE, LnTAA

b. Dependent Variable: IGI Note: Results obtained by using SPSS 17.0.*Significant @ 1% level of significance;

*** Significant @ 10% level of significance.

Table 7 shows the model summary where the R square value is 57.4% and adjusted R square value is 53.5%. It means 53.5% of the variation in IGI (dependent variable) is explained by the chosen independent variables. From the results of analysis of variance, it is found that the F test of the model is equal to 14.399 and is significant at 1% level.

It is also evident that the coefficient value of ROE (0.329) is positive and significant at 1% level. Hence, the Null hypothesis, H_{03e} , is rejected. Thus, there is a significant positive relationship between the level of regulatory compliance for investment guidelines (using IGI) and Return on Equity of Indian Life Insurers. The coefficient values of SOL (-0.220), AQL (-0.3) and LEV (-0.906) are negative and significant at 1% level. Also, the co-efficient value of ROA (-0.176) is negative but significant at 10% level. Hence, the Null hypotheses H_{03b} , H_{03c} , H_{03d} and H_{03h} , are rejected. Thus, there is a significant negative relationship between the level of regulatory compliance for investment guidelines (using IGI) and Solvency, Asset Quality Linked, Return on Assets and Insurance Leverage of Indian Life Insurers.

The variables such as LnTAA, PG and IP have positive coefficient values of 0.111, 0.021 and 0.101 and are not significant. CAP has a negative coefficient value of -0.022 and is not significant. Hence, the Null hypotheses H_{03a} , H_{03f} , H_{03g} and H_{03i} are accepted. Thus, there is no significant relationship between the level of regulatory compliance for investment guidelines (using IGI) and Total Admitted Assets (Size), Capital Position, Premium Growth and Total Investment Performance.

The Durbin Watson value of 1.987 indicates that the values are independent and there is no problem of autocorrelation. From the values of Tolerance and VIF, it is clear that there is no multicollinearity problem. Further, it is clear that the residuals are identically distributed with mean zero and equal variances and hence, the model does not face a problem of heteroscedasticity.

Robustness Test

To measure the determinants of level of regulatory compliance by Indian life insurers, select

performance variables and control variables (after robustness test) were regressed against the dependent variable, viz., the level of public disclosure. The independent variables including size indicators as control variables were chosen after many iterations.

2) To study the impact of level of compliance for investment guidelines on profitability:

H_{04} : Level of compliance for investment guidelines (using IGI) does not influence Net Profit of Indian life insurers

Table 8 shows the model summary where the R square value is 52% and adjusted R square value is 46.4%. It means 46.4% of the variation of dependent variable is explained by independent variables. From the results of analysis of variance, it is found that the F test of the model is equal to 9.355 and is significant at 1% level.

Table – 8 Regression Results - Impact of Level of Investment Guidelines Compliance on Net Profit

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.721 ^a	.520	.464	.334367811	1.862	
Analysis of Variance						
Model	SS	df	Mean Square	F	Sig.	
1	Regression	11.505	11	1.046	9.355	.000 ^a
	Residual	10.621	95	.112		
	Total	22.126	106			
Regression Coefficient						
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta		Tolerance	VIF
(Constant)	5.526	6.153		.898	.371	
IGI	.113	.466	.024	.244	.808	1.856
IPL	-.061	.252	-.018	-.241	.810	1.093
IP	.013	.034	.031	.394	.694	1.221
SOL	-.093	.031	-.257	-3.010	.003*	1.446
AQNL	-1.542	.633	-.217	-2.437	.017**	1.569
REAI	-3.995	6.115	-.051	-.653	.515	1.225
LAP	.698	.193	.274	3.614	.000*	1.134
LEV	.001	.000	.310	2.375	.020**	3.380
UWP	-.650	.328	-.194	-1.979	.051**	1.899
PG	.022	.005	.321	4.007	.000*	1.270
LnTAA	-.078	.024	-.358	-3.322	.001*	2.295

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-1.97494969E-1	2.04033232E0	.46981463	.320319411	107
Residual	-7.960361242E-1	1.364780903E0	-2.254819274E-16	.323154639	107
Std. Predicted Value	-2.083	4.903	.000	1.000	107
Std. Residual	-2.369	4.062	.000	.962	107

a. Predictors: (Constant), LnTAA, LIQ, LAP, SOL, PG, IGI, UWP, AQNL b. Dependent Variable: NPR

Note: Results obtained by using SPSS 17.0.*Significant @ 1% level of significance; ** Significant @ 5% level of significance.

It is also clear that the coefficient value of IGI, viz., .024, is positive but is not significant. Hence, the Null hypothesis, H_{04} , is accepted. Thus, **level of compliance for investment guidelines (using IGI) does not significantly influence Net Profit of Indian life insurers.**

The Durbin Watson value of 1.862 indicates that the values are independent and there is no problem of autocorrelation. From the values of Tolerance and VIF it is clear that, there is no Multicollinearity problem. Further, it is clear that the residuals are identically distributed with mean zero and equal variances and hence, the model does not face a problem of heteroscedasticity.

H_{05} : Level of compliance for investment guidelines (using IGI) does not influence Return on Equity of Indian life insurers

Table – 9 Regression Results - Impact of Level of Investment Guidelines Compliance on Return on Equity

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
2	.641 ^a	.411	.359	.330724330	2.064	
Analysis of Variance						
Model	SS	df	Mean Square	F	Sig.	
2	Regression	10.248	7	1.464	7.907	.000 ^a
	Residual	8.347	99	.084		
	Total	18.596	106			
Regression Coefficient						
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta		Tolerance	VIF
(Constant)	-8.982	5.723		-1.570	.120	
IGI	-.688	.393	-.155	-1.747	.084	.735
IPL	.645	.241	.207	2.681	.009	.972
IP	-.057	.032	-.143	-1.774	.079	.889
MS	-.010	.022	-.036	-.428	.670	.811
AQL	-.214	.092	-.190	-2.319	.022	.861

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
REAI 9.019	5.684	.128	1.587	.116	.893	1.119	
LIQ .465	.249	.152	1.864	.065	.863	1.158	
LAP -.460	.179	-.201	-2.574	.011	.946	1.057	
LnNP .054	.013	.372	4.060	.000	.687	1.455	

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-9.22425210E-1	1.13188589E0	-9.42217810E-2	.310934082	107
Residual	-1.049899101E0	1.029341102E0	.000000000	.280624141	107
Std. Predicted Value	-2.664	3.943	.000	1.000	107
Std. Residual	-3.616	3.545	.000	.966	107

a. Predictors: (Constant), LnNP, IPL, LIQ, LAP, IGI, PG, MS b. Dependent Variable: ROE

Note: Results obtained by using SPSS 17.0. *Significant @ 1% level of significance; ** Significant @ 5% level of significance.

Table 9 shows the model summary where the R square value is 41.1% and adjusted R square value is 35.9%. It means 35.9% of the variation of dependent variable is explained by independent variables. From the results of analysis of variance, it is found that the F test of the model is equal to 7.907 and is significant at 1% level.

It is also clear that the coefficient value of IGI, viz., .155, is negative and significant. Hence, the Null hypothesis, H_{05} , is rejected. Thus, **level of public disclosure (using LIPDI) negatively and significantly influences Return on Equity of Indian life insurers.**

The Durbin Watson value of 2.04 indicates that the values are independent and there is no problem of autocorrelation. From the values of Tolerance and VIF it is clear that, there is no Multicollinearity problem. Further, it is clear that the residuals are identically distributed with mean zero and equal variances and hence, the model does not face a problem of heteroscedasticity.

H_{05} : Level of compliance for investment guidelines (using IGI) public disclosure does not influence Return on Assets of Indian life insurers

Table – 10 Regression Results - Impact of Level of Investment Guidelines Compliance on

Return on Assets					
Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
3	.635 ^a	.403	.354	.174878957	1.775

Analysis of Variance						
	Model	SS	df	Mean Square	F	Sig.
3	Regression	1.979	8	.247	8.194	.000 ^a
	Residual	2.956	97	.030		
	Total	4.935	105			

Regression Coefficient							
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.463	.317		-1.462	.147		
IGI	.165	.227	.069	.730	.467	.690	1.449
IPL	-.113	.131	-.070	-.865	.389	.929	1.076
IP	.010	.017	.051	.596	.553	.856	1.168
CAP	-.075	.019	-.379	-4.006	.000	.687	1.455
AQL	-.065	.050	-.109	-1.291	.200	.865	1.156
LAP	-.199	.101	-.164	-1.971	.052	.890	1.123
UWP	.140	.168	.088	.836	.405	.554	1.804
LnTAA	.025	.013	.239	1.989	.049	.428	2.339

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-7.86807299E-1	.11558345	-8.62862686E-2	.137269945	106
Residual	-1.107260227E0	.460748523	.000000000	.167796678	106
Std. Predicted Value	-5.103	1.471	.000	1.000	106
Std. Residual	-6.342	2.639	.000	.961	106

a. Predictors: (Constant), LnNW, LAP, AQL, SOL, PG, IGI, UWP, CAP b. Dependent Variable: ROA

Note: Results obtained by using SPSS 17.0.*Significant @ 1% level of significance;** Significant @ 5% level of significance;

*** Significant @ 10% level of significance.

Table 10 shows the model summary where the R square value is 40.3% and adjusted R square value is 35.4%. It means 35.4% of the variation of dependent variable is explained by independent variables. From the results of analysis of variance, it is found that the F test of the model is equal to 8.194 and is significant at 1% level. It is also clear that the coefficient value of IGI, viz., .069, is positive but is not significant. Hence, the Null hypothesis, H_{05} , is accepted. Thus, **level of compliance for investment guidelines (using IGI) does not significantly influence Return on Assets of Indian life insurers.**

The Durbin Watson value of 1.775 indicates that the values are independent and there is no problem of autocorrelation. From the values of Tolerance and VIF it is clear that, there is no Multicollinearity problem. Further, it is clear that the residuals are identically distributed with mean zero and equal variances and hence, the model does not face a problem of heteroscedasticity.

H_{06} : Level of public disclosure (using LIPDI) does not influence Return on Sales of Indian life insurers

Table 11 shows the model summary where the R square value is 46.5% and adjusted R square value is 40.9%. It means 40.9% of the variation of dependent variable is explained by independent variables. From the results of analysis of variance, it is found that the F test of the model is equal to 8.343 and is significant at 1% level.

It is also clear that the coefficient value of IGI, viz., .029, is negative but is not significant. Hence, the Null hypothesis, H_{05} , is accepted. Thus, **level of compliance for investment guidelines (using IGI) does not significantly influence Return on Sales of Indian life insurers.**

The Durbin Watson value of 1.806 indicates that the values are independent and there is no problem of autocorrelation. From the values of Tolerance and VIF it is clear that, there is no Multicollinearity problem. Further, it is clear that the residuals are identically distributed with mean zero and equal variances and hence, the model does not face a problem of heteroscedasticity.

Table – 11 Regression Results - Impact of Level of Investment Guidelines Compliance on

Return on Assets							
Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson		
4	.682 ^a	.465	.409	.294196386	1.806		
Analysis of Variance							
Model	SS	df	Mean Square	F	Sig.		
4	Regression	7.411	9	.823	8.343	.000 ^a	
	Residual	8.152	98	.083			
	Total	15.562	107				
Regression Coefficient							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.108	.571		-.188	.851		
IGI	-.116	.353	-.029	-.330	.742	.727	1.376
IPNL	-.007	.025	-.024	-.294	.769	.866	1.155
IPL	.056	.220	.020	.256	.798	.932	1.073
SOL	.060	.024	.197	2.523	.013	.912	1.096
AQL	-.179	.083	-.172	-2.148	.034	.874	1.144
LIQ	.331	.217	.118	1.527	.130	.931	1.075
LAP	-.656	.163	-.307	-4.023	.000	.958	1.043
UWP	.554	.249	.197	2.225	.028	.710	1.408
PG	-.029	.005	-.507	-6.435	.000	.898	1.113
LnNW	.008	.041	.017	.198	.843	.744	1.345

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-1.76465678E0	.25628960	-1.54577521E-1	.263170885	108
Residual	-1.405761123E0	.742425859	-2.022559075E-16	.276013202	108
Std. Predicted Value	-6.118	1.561	.000	1.000	108
Std. Residual	-4.874	2.574	.000	.957	108

a. Predictors: (Constant), LnNW, LAP, AQL, LIQ, SOL, PG, IGI, UWP, AQNL b. Dependent Variable: ROS

Note: Results obtained by using SPSS 17.0. *Significant @ 1% level of significance; ** Significant @ 5% level of significance.

Robustness Test

To measure the impact of level of public disclosure on the profitability of Indian life insurers, the IGI scores, size indicators as control variables and select performance variables (after robustness test) were regressed against the dependent variable, viz., one profitability indicator at a time. Totally, 4 multiple regression models are used.

Table - 12 Pearson Correlation Matrix

Variables	IGI	NPR	ROE	ROA	ROS	LnTAA	LnNP	LnNW	AQNL	REAI	IPNL	IPL	MS	AQL	SOL	LIQ	LAP	PG	UWP	CAP
IGI	1																			
NPR	.068	1																		
ROE	-.520	-.066	1																	
ROA	-.050	-.112	.519	1																
ROS	-.054	-.995	.072	.127	1															
LnTAA	-.350	-.176	.464	.439	.158	1														
LnNP	-.156	-.376	.427	.325	.355	.638	1													
LnNW	.094	-.215	.088	.243	.193	.636	.633	1												
AQNL	-.497	-.107	.267	.160	.091	.432	.245	.190	1											
REAI	-.094	-.955	.023	.041	.958	.136	.266	.110	.067	1										
IPNL	-.291	-.021	.259	.039	.017	.234	.122	.047	.131	.017	1									
IPL	-.076	-.064	.225	-.012	.058	.069	.107	.069	.131	-.089	-.015	1								
MS	.036	.799	-.153	-.231	-.780	-.202	-.484	-.325	-.175	-.591	-.033	-.062	1							
AQL	.044	-.085	-.025	-.081	.051	.102	.294	.182	.045	-.038	-.006	.063	-.085	1						
SOL	.188	-.027	-.054	.060	.018	-.255	-.022	-.143	-.373	.001	-.093	-.122	-.097	.029	1					
LIQ	.104	-.091	.156	.110	.088	.219	.208	.249	-.200	.030	-.033	.029	-.150	.028	-.078	1				
LAP	.168	-.127	-.265	-.265	.128	-.124	-.052	.129	-.179	.110	-.092	.036	-.119	-.010	.000	.064	1			
PG	.041	.448	-.149	-.350	-.513	-.278	-.313	-.224	-.147	-.245	-.029	-.087	.437	-.109	.146	-.092	-.006	1		
UWP	-.296	.328	.573	.287	-.342	.517	.537	.362	.277	-.360	.135	.219	.199	.040	-.141	.016	-.081	-.214	1	
CAP	.043	.541	.006	-.002	-.527	-.226	-.331	-.240	-.108	-.540	-.019	-.098	.363	-.097	-.030	-.103	-.165	.563	.348	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). Note: Results computed using SPSS 17.0

From the Table 12, it is clear that no two independent variables are highly correlated. Hence, there exists no multicollinearity problem.

IX. Conclusion

This study has led to the conclusion that Solvency, Asset Quality Linked, Return on Assets, Return on Equity and Insurance Leverage are the determinants of investment guidelines compliance of life insurers. Level of investment guidelines compliance affects profitability in terms of Return on Equity of Indian life insurers. Thus, level of public disclosure of Indian life insurers is determined by performance indicators such as Solvency, Asset Quality Linked, Return on Assets, Return on Equity and Insurance Leverage. Level of compliance for investment guidelines negatively and significantly influences profitability in terms of Return on Equity of Indian life insurers.

In the process of increasing the insurance penetration in reaching the uninsured population, the Indian life insurance sector has to make improvements in complying with investment guidelines and in making prudential investment decisions. Though the regulations specify the norms for investments to be made by life insurers, the decisions on equity investments of LIC (the only public life insurer) had been influenced by the central government in the recent past particularly during disinvestment of public sector enterprises. Hence, IRDA should oversee, govern and ensure that the LIC follows the investment regulations intact without any interference of any other outside official mechanisms. The investment performance depends on the regulatory compliance for investment regulations. Hence, the private life insurers, especially the new entrants, need to ensure cent percent compliance with investment regulations to improve their investment performance. As the Indian life insurance sector is still a teenager and in its nascent stage, it will take time to reap the efforts of better disclosure than ever before.

End Notes

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Appendix - List of Life Insurers in India

S. No	Abbreviation	Name of Life Insurer
1	Aviva	Aviva Life Insurance Company
2	Bajaj	Bajaj Allianz Life Insurance Company
3	Birla	Birla Sun Life Insurance Company
4	HDFC	HDFC Standard Life Insurance Company
5	ICICI	ICICI Prudential Life Insurance Company
6	ING	ING Vysya Life Insurance Company
7	Max	Max Life Insurance Company
8	Met	PNB Metlife India Insurance Company
9	Kotak	Kotak Mahindra Old Mutual Life Insurance Company
10	Rel	Reliance Life Insurance Company
11	Saha	Sahara India Life Insurance Company
12	SBI	SBI Life Insurance Company
13	Shri	Shriram Life Insurance Company
14	TATA	Tata AIA Life Insurance Company
15	LICI	Life Insurance Corporation of India
16	Bharti	Bharti AXA Life Insurance Company
17	Future	Future Generali India Life Insurance Company
18	IDBI	IDBI Federal Life Insurance Company
19	Aegon	Aegon Religare Life Insurance Company
20	Canara	Canara HSBC Oriental Bank of Commerce Life Insurance Company
21	DLF	DLF Pramerica Life Insurance Company
22	Star	Star Union Dai-ichi Life Insurance Company
23	India	IndiaFirst Life Insurance Company
24	Edel	Edelweiss Tokio Life Insurance Company (came into existence during 2011-12)

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