Determinants of Public Disclosures 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. One of the most important and emerging areas is the timely and reliable public disclosures of risks faced by the insurers which are critical for ensuring fair and orderly growth of the insurance sector. The International Association of Insurance Supervisors (IAIS) has recognized that the insurers have an equal if not greater responsibility towards the policyholders than their duty towards the investors as policyholders lose much more money than the investors in the event of the insurer's insolvency. Public disclosures provide information to the policyholders to make necessary decisions before entering into a contract and strengthen corporate governance and market discipline for the insurers. In this context, an empirical study on the determinants of public disclosures 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. Size (Net Worth), Asset Quality Non-Linked, Reinsurance and Actuarial Issues, Non-Linked Investment Performance, Management Soundness and Return on Equity are the determinants of level of public disclosure by life insurers. Level of public disclosure affects profitability in terms of Return on Equity of Indian life insurers.

Keywords: IRDA, Public Disclosure, LIPDI, Indian Life Insurers

JEL Classification: G 22

I. Introduction

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).[1] 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 LICI operating in India in the year 2011-12. Several Indian private players apart from the LICI 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,[2] 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.[3] 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.[4] 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.[5]

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%.[6] 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.[7] There are twenty-four life insurers including the public insurer, LICI, operating in India as on September 2013. Several Indian private players apart from the LICI have completed ten years of existence. Indian life insurance penetration had consistently gone up from 2.15 per cent in 2001 to 3.17 per cent in 2012. The life insurance density in India has gone up from USD 9.1 in 2001 to USD 42.7 in 2012. In the life insurance business India is ranked 10th among the 88 countries according to Swiss Re.[8]

III. Public Disclosures of Indian Life Insurers

The emphasis on public disclosures is a worldwide phenomenon with the insurance supervisors globally mandating the players to make the business information public. The failure of an insurer for whatever reason will shake the confidence of the average consumer whose knowledge of the insurance business is not at a very high pedestal. One way of ensuring that the conduct of a player is on par with the expectations of the stakeholders in general and the regulator in particular, is by ensuring that the various business statistics and other relevant information are displayed for public viewing at frequent intervals.[9] Timely and reliable public disclosures of risks faced by the insurers are critical for ensuring fair and orderly growth of the insurance sector. The International Association of Insurance Supervisors (IAIS) has recognized that the insurers have an equal if not greater responsibility towards the policyholders than their duty towards the investors as policyholders lose much more money than the investors in the event of the insurer's insolvency. IAIS has also prescribed that disclosures by the electronic means may be encouraged to ensure availability of historical data on a continuous basis to the various stakeholders.

Public disclosures provide information to the policyholders to make necessary decisions before entering into a contract and strengthen corporate governance and market discipline for the insurers. Several Indian life insurers completing the statutory period of 10 years may be allowed by the IRDA to go for the Initial Public Offer (IPO). In this context, it is essential that the investors are fully aware of the financial performance, company profile, financial position, the risk exposure, the corporate governance and the management of the insurers well before the companies go for an IPO. The Indian insurance industry has embarked upon the process of public disclosures being made by insurers in the recent past. In the light of establishment of the apex body, Insurance Regulatory and Development Authority of India (IRDA) in 1999 and by the introduction of standards on public disclosures for the insurers, it is worthwhile to analyse the determinants of public disclosures and its impact on the profitability of Indian life insurers.

Public Disclosure by Indian life insurers is mandatory and given in a set of 42 statements containing specific information about the working of an insurer targeting the stakeholders at large. Table 1 shows an original, unweighted (equal weights) Life Insurance Public Disclosure Index (LIPDI) constructed by **Charumathi & Nithya**[37] consisting of six attributes such as actuarial attributes, investment attributes, corporate governance attributes, financial attributes, policyholders' attributes and insurance agent attributes. Table 2 gives the level of Public Disclosure made by Indian life insurers measured using Life Insurance Public Disclosure Index (LIPDI) in percentages.

Table - 1 Life Insurer Public Disclosure Index (LIPDI)

I. Actuarial Attributes	Score	V. Financial Attributes	Score
L-24 Valuation of Net Liabilities	100	L-1 Revenue / Policyholders' Account	100
L-32 Solvency Margin	100	L-2 Profit & Loss / Shareholders' Account	100
L-42 Valuation Basis	100	L-3 Balance Sheet	100
Sub-total	300	L-4 Premium Schedule	100
II. Investment Attributes		L-5 Commission Schedule	100
L-26 Investment Assets	100	L-6 Operating Expenses Schedule	100
L-27 Unit Linked Business	100	L-7 Benefits Paid Schedule	100
L-28 ULIP-NAV	100	L-8 Share Capital Schedule	100
L-29 Detail regarding Debt Securities	100	L-10 Reserve and Surplus Schedule	100
L-33 NPAs	100	L-11 Borrowings Schedule	100
L-34 Yield on Investments	100	L-15 Loans Schedule	100
L-35 Downgrading of Investments	100	L-16 Fixed Assets Schedule	100
Sub-total	700	L-17 Cash and Bank Balance Schedule	100
III. Corporate Governance Attributes		L-18 Advances and Other Assets Schedule	100
L-9 Pattern of Shareholding Schedule	100	L-19 Current Liabilities Schedule	100
L-30 Related Party Transactions	100	L-20 Provisions Schedule	100
L-31 Board of Directors and Key Person	100	L-21 Misc. Expenditure Schedule	100
Sub-total	300	L-23 Receipts and Payments Schedule	100
IV. Policyholders' Attributes		Sub-total	1800
L-12 Investment Shareholders Schedule	100	**VI. Insurance Agent Attributes**	
L-13 Investment Policyholders Schedule	100	L-25(I&II) Geographical Distribution	
L-14 Assets Held to Cover Linked Liabilities	100	Channel- Individual& Group	100
Schedule		L-37 Business Acquisition through Different	100
L-22 Analytical Ratios	100	Channels (Group)	
L-38 Business Acquisition through Different Channels (Individual)	100		
L-36 Premium and Number of Lives Covered by Policy Type	100	Sub-total	300
L-39 Data on Settlement of Claims	100	**Total (300+700+300+800+1800+300)**	**4200**
L-40 Claims Data for Life	100		
L-41 Grievance Disposal	100		
Sub-total	800		

Note: This original LIPDI is constructed by Charumathi & Nithya. L-1 to L-42 is the code used by Life Insurers for various items.

Table – 2: Level of Public Disclosure by Indian Life Insurers using LIPDI (%)

S.No	Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
1	Aviva	100	100	100	100	100	99
2	Bajaj	98	99	99	99	99	100
3	Birla	99	99	98	99	99	99
4	HDFC	96	96	96	99	99	99
5	ICICI	96	94	95	95	96	95
6	ING	98	98	98	98	99	100
7	Max	100	100	100	100	100	100
8	Met	98	98	97	98	98	98
9	Kotak	96	98	98	98	98	98
10	Rel	100	100	100	100	100	99
11	Saha	94	95	88	94	94	95
12	SBI	95	98	93	98	98	98
13	Shri	98	96	96	95	98	99
14	TATA	100	100	100	100	100	100
15	LIC	82	85	82	86	83	94
16	Bharti	NE	93	93	98	98	99
17	Future	NE	NE	100	100	100	96
18	IDBI	NE	NE	98	99	100	98
19	Aegon	NE	NE	NE	100	100	98
20	Canara	NE	NE	NE	100	100	100
21	DLF	NE	NE	NE	98	98	98
22	Star	NE	NE	NE	98	98	99
23	India	NE	NE	NE	NE	98	96

Note: Results computed using LIPDI based on the information disclosed by the Indian Life Insurers.

NE-Not in Existence

IV. Review of Literature

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

Some of the earlier studies analysed the forms of presenting accounting data and its uses by empirically verifying the predictive ability of financial statements of U.S. industrial firms prepared under accepted reporting standards using financial ratios. (**Beaver, 1966**)[10] Reporting service can be an effective tool as the financial ratings of Best's Insurance Reports, on the basis of historical performance was effective in avoiding delinquent insurers in the U.S. (**Denenberg, 1967**)[11] As financial reports of insurers showing combined sales figures for

radically different products do not provide utility to the investor, segment reporting for major products in logical groups based on the source of earning profits was essential. **(Allison, 1998)**[12] The convergence and interplay between the insurance and the capital markets will depend on the insurers' ability to improve its data quality and risk management practices due to the number and size of large losses in the markets. Insurers with the best data collection and control will have a competitive edge in leveraging their own risk management franchises for stakeholders. **(Butt, 2007)**[13]

Studies analysed the need for disclosure of information by insurers on their websites. An insurers' website had to cater to the needs of its agents, insured and consumers in a rapid, accurate and updated manner as there is a possibility of the website becoming obsolete very easily. Insurers with more content on their websites focusing on life advice information had been largely benefited as consumers get back to a trusted adviser when they were in need of products. Insurers also use their web site for internal merchandising to make people aware of the business units and corporate entities, the capabilities of the web and what the companies were trying to do with their web site. **(Bill, 1997)**[14] On surveying the websites of top 250 U.S. property/casualty insurers it was found that the insurance industry had lagged behind the other industries in using the internet as a new medium of doing business. Larger companies had more sophisticated websites with majority of them using their websites only as marketing vehicle. Only a few companies provided interactivity, providing online real time quotes and online policy issuance. **(Franzis, 2000)**[15]

Using content analysis, the level of financial and social responsibility information disclosures on the web pages of 40 U.S. property and casualty insurance firms was analysed. There was moderate disclosure of financial information and social responsibility disclosure levels tend to be very low. Also, insurance firms who were taking the lead in terms of developing the web for potential financial gain were not outperforming the others with respect to information disclosure. **(Patten, 2002)**[16] Insurers in New Zealand had websites but less than half of them were New Zealand ones, as most of the companies used an international website to service their global customers with majority of these sites not including many features specific for New Zealand customers. Overall it was found that the uptake of electronic commerce was relatively slow and the insurance industry was only employing the internet to distribute information with few companies offering the capability of online transactions. **(Yao, 2004)**[17]

Pollalis & Vozikis (2007)[18] described the Greek insurance market by analysing the key metrics that defined the size and shape of the industry, explored the e-business landscape and unveiled the relations between the internet and insurance practice. E-insurance presence and profile of the insurers in Greece had been delineated through the evaluation of their web sites using various criteria. A framework of web strategy had been suggested to improve the technical capabilities. **Adams (1997)**[19] investigated the motives for voluntary disclosure of public annual reports of New Zealand based life insurers. Interview evidence was gathered from 22 financial managers and/or senior executives in 12 life insurers selected purposefully between October 1994 and April 1995 and content analysis was used. Empirical evidence suggested that voluntary disclosure was a complex phenomenon influenced both by organizational antecedents such as company culture and tradition; and environmental conditions such as industry norms and market competition.

Janvrin & Kurtenbach (2006)[20] examined how Fair Disclosure (FD) was rapidly changing the information environment by examining the perceptions of FD from two primary interest groups: information providers and users of financial disclosures in the United States. Results indicated that providers and users perceive that narrow distribution reporting activities still existed and reducing users' personal access to providers may increase the importance of assurance services. To reduce the likelihood of FD violations, providers may want to monitor closely any narrow reporting activities disclosing material information and incorporate specific guidance regarding these activities in their corporate disclosure policies.

Tudini, Forte & Mattei (2011)[21] outlined the emergence of voluntary disclosure of Embedded Value (EV) by major European life insurers. Using two step regression and t-test it was found that the value relevance of EV disclosures had incremental power over and above statutory reports. **Nissim (2010)**[22] reviewed and analysed the activities, reporting and valuation of insurers. The insurance business was illustrated; financial information and the accounting methods used in preparing financial statements was evaluated; financial disclosures used to analyze the risk, performance, growth prospects and value of insurers were explained; and the models used in valuing insurers were also described. Relevant academic findings were also reviewed apart from presenting a template for forecasting the key financial statement line items of insurers.

Gaa & Krinsky (1988)[23] focused on the desirability of uniformity in reporting financial information to insurance regulators by insurers and how uniformity may be achieved. It was found that during instances of serious constraints on the ability of policyholders to process information, uniformity may convey substantial benefits to policyholders, investors and insurers. Also, the inability of a competitive system to ensure uniform reporting system, even though it may be in the interest of every insurer and policyholder, provides an economic justification for the existence of insurance commissioners to promulgate standards directly.

KPMG (2008)[24] analyzed using a Best Practice Risk Disclosure framework consisting of nine risk areas; three bank specific areas (credit, market and ALM risk), three insurance specific areas (insurance, investment and ALM and liquidity risks) and three risk areas common for both sectors (business risk, operational risk and overall risk and capital strategy). The survey examined the 2007 annual reports of 25 banks and 14 insurers across Europe. The disclosure level in the insurance sector was lower than in the banking sector. Three insurance sector risk areas were on a mediocre level (insurance risk, investment risk, overall risk strategy), while the rest were on an inadequate level (ALM risk, business risk, operational risk). Also the dispersion in the insurers' risk disclosure was wide. The average disclosure level was far from the regulatory benchmark as defined under Solvency II regime.

PricewaterhouseCoopers (2009)[25] carried the results of a survey of 40 investment professionals across the US, Europe, Asia and Australia to gain their perspectives on the current state and future direction on financial reporting in the insurance industry. Findings revealed widespread dissatisfaction with the current state of financial reporting. Many participants especially life insurance analysts using IFRS would like the IASB to move to a revised reporting framework as quickly as possible. **Hunter & Murphy (2009)**[26] used the Efficient Market Hypothesis to measure the total market response to the introduction of internet at the macro level and market performance of those firms that had invested in the new technology at the micro level. The

objective was to determine whether any value enhancing benefits accrued for those emerging market firms that invested in internet technology using valuation methodologies to measure security price performances relative to the two event dates. Publicly listed firms in Brazil, India, Indonesia, Russia and South Africa that commercialized the internet and announced the existence of their websites during the sampling period of 1991 to 2001 were analysed. Empirical evidence confirmed the longitudinal effects of internet technology and revealed positive dispersions in market price and volume around the event dates. Market performance of securities listed on emerging market stock exchanges did improve after commercialization of the internet with regard to India, Indonesia and South Africa. Further, in markets that suffered from low liquidity firms that invested in internet technology were able to use the electronic medium to attract foreign investors, analysts and creditors who might not have otherwise considered the emerging market securities within their portfolios. The value of the website firms in India, Indonesia and South Africa appeared to be incrementally enhanced due to their investments in web technology and the magnitude of the price effects was more significant for website firms in Indonesia and South Africa than in India.

Centre for Strategy and Evaluation Services (2011)[27] analysed non-financial reports of 71 companies in eight European countries. Selected companies in banking and financial services including insurance, food and agriculture, textile, consumer goods, extractive and other sectors were analysed during July and November 2011. Majority of the larger firms developed their reports based on Global Reporting Initiative framework. Less than half the reports contained some form of external assurance particularly the largest companies who chose to obtain such assurance. Around a fifth of companies had a specific oversight body as regards internal supervision; others relied on the board to take responsibility in collaboration with a specific department; and nearly half of companies did not refer to any separate supervisory body. Companies reported on non-financial items, viz., 'Environment' followed by 'Labour and employment', 'Society and Community' and 'Product responsibility' while half the reports considered the economic impact of the company or human rights. The use of quantifiable indicators varied significantly with 47 firms using the indicator system proposed by Global Reporting Initiative. Large majority of firms employed environmental indicators closely followed by labour-related indicators.

Prefontaine, Desrochers & Godbout (2011)[28] analysed the informational content of voluntary embedded value public financial disclosures by 4 Canadian life insurers during the years 2000-2010. As opposed to traditional statutory balance sheet and earnings' reporting embedded value voluntary disclosure attempted to estimate the present value of future earnings generated by a life insurer. Ordinary Least Squares regression was estimated between metrics like market value of equity, the dependant variable and book value of equity; and embedded value of equity. The results indicated that embedded value voluntary financial disclosures provided relevant informational content from the years 2000 to 2007; but failed to communicate intrinsic informational content and to provide value relevance to external stakeholders during the 2007-2010 period as they were not closely associated with life insurers' market value of equity and credit ratings of market turmoil.

Studies analysed the determinants of disclosure. **Adams & Hossain (1998)[29]** applied the managerial discretion hypothesis to explain the differences in the voluntary information disclosure level in the annual reports of New Zealand life insurers. The managerial discretion

hypothesis implied that the level of voluntary disclosure by life insurers was related to eight firm-specific factors namely, organizational form, assets-in-place, product concentration, reinsurance, localization of operations, number of non-executive directors on the board, firm size and type of distribution system. The relationship between voluntary disclosure and eight explanatory variables were specified in a fixed-effects regression model using 1988 to 1993 data. The results indicated that organizational form, firm size, product diversity and distribution system were positively related to the level of voluntary disclosure while, assets-in-place and localization of operations were not significant variables. The independent variables like non-executive directors and reinsurance were statistically significant in the opposite direction to that predicted.

Horing & Grundl (2011)[30] explored the risk disclosure practices in annual reports of European primary insurers in the Dow Jones Stoxx 600 Insurance Index between 2005- 2009. Based on a self-constructed risk disclosure index using content analysis, the relation between the extent of risk disclosure and insurers' characteristics such as size, risk, profitability, ownership dispersion, cross-listing, home country and type of insurance sold was examined. The study revealed that in recent years the importance of risk disclosure increased substantially with regard to extent and location in the annual reports. Using multiple regression models it was found that there was a significant positive relationship between the extent of risk disclosure and insurer size and insurer risk and a significant negative relationship between risk disclosure and insurer profitability. The study also confirmed the influence of cross-listing status and ownership dispersion on the extent of risk disclosure.

A research study investigated the disclosure practices in the annual reports of European insurers in the STOXX All Europe 800 Insurance Index during 2006-2010. Content analysis was used to construct a disclosure index consisting of 50 items organized into 4 sub-indices based on the information disclosed by insurers. After measuring the disclosure level using the index, a random effects regression model was employed to observe whether disclosure level depended on insurer's characteristics such as size, profitability, home country, sub-sector and gross premiums. The analysis revealed that disclosure level had increased over time in particular between 2008 and 2010 implying that companies were enhancing the quality of their reports close to the implementation of Solvency II. Big insurers, insurers with their home country in northern Europe and with a high amount of written premiums had disclosed more. Factors like profitability and the sub-sector were not relevant in determining the amount of information disclosed.[31]

Hemrit & Arab (2011)[32] examined the operational risk disclosure practices in 14 Tunisian insurers during 2000–2009. An unweighted disclosure index consisting of 27 items divided into 4 sub-indices was developed to assess the operational risk disclosure level referred to as residual section in published reports. The results indicated that the disclosure index depended largely on size, leverage and provision intensity. **Moradi, Salehi & Arianpoor (2011)**[33] interviewed financial managers of 406 companies listed in the Tehran Stock Exchange covering 36 different industrial sectors during the year 2008. The findings showed that the financial managers' disinterest in disclosing the timely financial date was one of the causes for the presence of weakness in the setting up of internet financial reporting system in Iran. Absence of a legal obligation to release timely information on the companies' websites, lack of a standard for internet financial reporting through websites, lack of awareness about the advantages of

the internet financial reporting among the managers, problems relating to rendering of internet services like low internet speed, internet disconnection, etc., possibility of hacking by rival companies, companies' disinterest to spend further costs and re-publish the related reports via their websites were some of the other factors that contributed to the shortcomings of internet reporting.

IAIS (2002)[34] recognized the role of supervisors in encouraging insurers to make effective risk disclosures critical to market discipline. Public disclosure by insurers enables market participants to understand an insurer's current financial condition and future viability. Quality of public disclosures depends on its relevance, timeliness, accessibility, comprehensiveness, reliability, comparability and consistency in facilitating decision making by market participants. Public information should include descriptions of financial position, financial performance, risk exposures and how they are being managed. Disclosures should also include an adequate description of how information is prepared including methods applied and assumptions used along with information about an insurer's business, management and corporate governance to help market participants assess an insurer's efficiency and overall strength, future prospects and ability to respond to change.

Charumathi (2011)[35] measured the extent of information disclosure made by Indian life insurers on their websites by developing an original Insurance Disclosure Attribute Index (IDAI). The information disclosed on the websites were compiled and classified into different attributes such as general, financial, insurance agent/advisor, corporate governance, policyholders and shareholders with scores assigned for each attribute and finally arrived at overall disclosure score for each insurer using IDAI. The study concluded that websites of Indian life insurers although well developed to a larger extent posed a dilemma for the user in the context of comparability due to the lack of uniformity and absence of vital information relating to various attributes by certain companies on their websites.

Charumathi (2013)[36] examined the extent of information disclosure by Indian general insurers on their websites by constructing an original General Insurance Website Disclosure Index (GIWDI) consisting of different attributes relating to general, financial, insurance associates (agent/brokers/partner), corporate governance and policy holder. There was no adequate information disclosure on the websites of Indian general insurers and there existed significant company-wise, attribute-wise and ownership-wise differences. **Charumathi & Nithya (2013)[37]** analysed the public disclosures made by the Indian life insurers on their websites using content analysis. An original Life Insurer Public Disclosure Index (LIPDI) was developed by classifying the statements into six attributes which relate to actuarial, investment, corporate governance, financial, policyholders and insurance agent. The availability, completeness and relevance of the information given in the public disclosures were analysed. There was adequate public disclosure by Indian Life Insurers but there existed a significant company-wise difference.

Some of the earlier studies on the disclosure of information by insurers, analysed the importance of reporting service, the predictive ability of financial statements, need for segmental reporting, etc. Subsequently, research works concentrated on the need for information disclosure on the insurance company's websites. Most of the studies used content analysis and analysed the voluntary disclosure and the mandatory disclosure of information by insurers on their websites and annual reports. Studies also analysed the determinants of

voluntary disclosure and risk disclosure practices of insurers on their annual reports. Following the guidelines issued by the IAIS on the public disclosures to be made by insurers, the Indian insurance industry has also made strides in achieving the same. Studies in the Indian context analysed the extent of information disclosed on their websites. Study on the public disclosures made by the Indian life insurers analysed the level of compliance with the guidelines given by the apex body, IRDA in this regard and extent of information disclosure. There has been a dearth of studies in the Indian context that have analysed the determinants of public disclosure 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 determinants of level of Public Disclosure by Indian life insurers.

2) To study the impact of level of Public Disclosure 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 - 4) [See Appendix for name of the companies]. 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 – 4 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:

1) **Life Insurance Public Disclosure Index (LIPDI):** It measures the level of public disclosure made by Indian life insurers. The public disclosures were verified for their availability, completeness and correctness and scores were assigned for each statement. Finally, the overall disclosure score for each insurer were arrived at using LIPDI.

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

2) **Net profit Ratio (NPR):** It is the ratio of Expenses to Net premium.

3) **Return on Equity Ratio (ROE):** It is the ratio of Net income before taxes to Capital and surplus.

4) **Return on Assets Ratio (ROA):** It is the ratio of Net income before taxes to Total Admitted Assets.

5) **Return on Sales Ratio (ROS):** It is the ratio of Net income before taxes to Net Premiums written.

The financial stability of insurers is affected by the size of the firm. This study used the following size variables:

6) **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.

7) **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.

8) **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 public disclosure and its impact on profitability:

9) **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.

10) **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.

11) **Non-Linked Investment Performance Ratio (IPNL):** It measures the performance of non-linked investment assets.

12) **Linked Investment Performance Ratio (IPL):** It measures the performance of linked investment assets.

13) **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.

14) **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.

15) **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.

16) **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.

17) **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.

18) **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).

19) **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.

20) **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 5.

Table – 5 Variables Chosen for the Study

Variables	Formulae
Life Insurance Public Disclosure Index (LIPDI)	Index scores measuring the level of public disclosure made by 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
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
Management Soundness (MS)	Operating Expenses/Gross Premium
Asset Quality Linked (AQL)	Equities/Total Linked Investments

Variables	Formulae
Solvency (SOL)	Available Solvency Margin/ Required Solvency Margin
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 public disclosure:

   Model 1:

   $LIPDI = \beta_0 + \beta_1 LnNW + \beta_2 AQNL + \beta_3 REAI + \beta_4 IPNL + \beta_5 MS + \beta_6 ROE + \beta_7 AQL + \varepsilon_i$

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

   Model 1:

   $NPR = \beta_0 + \beta_1 LIPDI + \beta_2 SOL + \beta_3 AQNL + \beta_4 LIQ + \beta_5 LAP + \beta_6 PG + \beta_7 UWP + â_8 LnTAA + \varepsilon_i$

   Model 2:

   $ROE = \beta_0 + \beta_1 LIPDI + \beta_2 LIQ + \beta_3 LAP + \beta_4 IPL + \beta_5 MS + \beta_6 PG + \beta_7 LnNP + \varepsilon_i$

   Model 3:

   $ROA = \beta_0 + \beta_1 LIPDI + \beta_2 CAP + \beta_3 SOL + \beta_4 AQL + \beta_5 LAP + \beta_6 PG + \beta_7 UWP + \beta_8 LnNW + \varepsilon_i$

   Model 4:

   $ROS = \beta_0 + \beta_1 LIPDI + \beta_2 SOL + \beta_3 AQNL + \beta_4 AQL + \beta_5 LIQ + \beta_6 LAP + \beta_7 PG + \beta_8 UWP + \beta_9 LnNW + \varepsilon_i$

VII. HYPOTHESES

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

1) To study the determinants of level of public disclosure:

H_{01}: There is no significant relationship between the level of public disclosure (using LIPDI) and

   H_{01a}: Net Worth (LnNW) (Size indicator)

   H_{01b}: Asset Quality Non-Linked (AQNL)

   H_{01c}: Reinsurance & Actuarial Issues (REAI)

H_{01d}: Non-Linked Investment Performance (IPNL)

H_{01e}: Management Soundness (MS)

H_{01f}: Return on Equity (ROE)

H_{01g}: Asset Quality Linked (AQL)

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

H_{02}: Level of public disclosure (using LIPDI) does not influence Net Profit of Indian life insurers

H_{03}: Level of public disclosure (using LIPDI) does not influence Return on Equity of Indian life insurers

H_{04}: Level of public disclosure (using LIPDI) does not influence Return on Assets of Indian life insurers

H_{05}: Level of public disclosure (using LIPDI) does not influence Return on Sales of Indian life insurers

VIII. Results and Discussion

Table 6 shows the descriptive statistics like, Minimum, Maximum, Mean and SD of Size, performance indicators & level of public disclosure (in terms of LIPDI) 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
LIPDI	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

	N	Minimum	Maximum	Mean	Std. Deviation
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.

1) To study the determinants of level of public disclosure:

H_{01}: There is no significant relationship between the level of public disclosure (using LIPDI) and

   H_{01a}: Net Worth (LnNW) (Size indicator)

   H_{01b}: Asset Quality Non-Linked (AQNL)

   H_{01c}: Reinsurance & Actuarial Issues (REAI)

   H_{01d}: Non-Linked Investment Performance (IPNL)

   H_{01e}: Management Soundness (MS)

   H_{01f}: Return on Equity (ROE)

   H_{01g}: Asset Quality Linked (AQL)

Table – 7 Regression Results - Determinants of Level of Public Disclosure Index (LIPDI)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746[a]	.556	.526	.024813374	1.901

A nalysis of Variance

Model		SS	df	Mean Square	F	Sig.
1	Regression	.080	7	.011	18.456	.000[a]
	Residual	.063	103	.001		
	Total	.143	110			

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.169	.424		5.113	.000		
LnNW	.007	.003	.157	2.234	.028**	.870	1.150
AQNL	-.240	.039	-.423	-6.107	.000*	.896	1.116
REAI	-1.271	.418	-.206	-3.040	.003*	.937	1.067
IPNL	-.004	.002	-.125	-1.828	.070***	.924	1.082
MS	-.006	.002	-.194	-2.775	.007*	.882	1.134
ROE	-.036	.006	-.415	-5.716	.000*	.818	1.222
AQL	.003	.007	.035	.527	.599	.977	1.024

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.86313951	1.02270877E0	.97238524	.026890813	111
Residual	-8.222039044E-2	.056957349	-2.312652072E-16	.024010881	111
Std. Predicted Value	-4.063	1.871	.000	1.000	111
Std. Residual	-3.314	2.295	.000	.968	111

a. Predictors: (Constant), IPL, LnTAA, REAI, CAP, AQNL, LnNW, LnNP, LEV b. Dependent Variable: LIPDI

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

*** *Significant at 10@ level of significance.*

Table 7 shows the model summary where the R square value is 55.6% and adjusted R square value is 52.6%. It means 52.6% 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 18.456 and is significant at 1% level.

It is also clear that the co-efficient value of LnNW (0.157) is positive and significant at 5% level. Hence, the Null hypothesis, H_{01a} , is rejected. Thus, *there is a significant positive relationship between the level of public disclosure (using LIPDI) and Size (Net Worth) of Indian Life Insurers.* The co-efficient values of AQNL (-0.423), REAI (-0.206), MS (-0.194) and ROE (-0.415) are negative and significant at 1% level. Also, the co-efficient value of IPNL is negative and significant at 10% level. Hence, the Null hypotheses, H_{01b}, H_{01c}, H_{01d}, H_{01e} and H_{01f} are rejected. Thus, *there is a significant negative relationship between the level of public disclosure (using LIPDI) and Asset Quality Non-Linked, Reinsurance and Actuarial Issues, Non-Linked Investment Performance, Management Soundness and Return on Equity of Indian Life Insurers.*

The variable AQL has a positive coefficient value, viz., .035, but is not significant. Hence, the Null hypothesis, H_{01g}, is accepted. Thus, *there is no significant relationship between the level of public disclosure (using LIPDI) and Asset Quality Linked.* The Durbin Watson value of 1.901 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 public disclosure on profitability:

H_{02}: Level of public disclosure (using LIPDI) does not influence Net Profit of Indian life insurers

Table 8 shows the model summary where the R square value is 49.6% and adjusted R square value is 45.5%. It means 45.5% 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 12.159 and is significant at 1% level.

It is also clear that the coefficient value of LIPDI, viz., .084, is negative but is not significant. Hence, the Null hypothesis, H_{02}, is accepted. Thus, *level of public disclosure (using LIPDI) does not significantly influence Net Profit of Indian life insurers.*

The Durbin Watson value of 1.741 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 – 8 Regression Results - Impact of Level of Public Disclosure on Net Profit

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
1	.704[a]	.496	.455	.335957767	1.741

Analysis of Variance

Model		SS	df	Mean Square	F	Sig.
1	Regression	10.979	8	1.372	12.159	.000[a]
	Residual	11.174	99	.113		
	Total	22.153	107			

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.410	1.139		2.115	.037		
LIPDI	-1.056	1.080	-.084	-.978	.331	.689	1.451
SOL	-.109	.029	-.305	-3.839	.000*	.809	1.237
AQNL	-1.536	.683	-.216	-2.249	.027**	.551	1.814
LIQ	-.293	.261	-.088	-1.121	.265	.828	1.208
LAP	.641	.193	.251	3.328	.001*	.896	1.116
PG	.025	.005	.363	4.817	.000*	.899	1.113
UWP	-.506	.310	-.151	-1.633	.106	.594	1.685
LnTAA	-.049	.022	-.225	-2.186	.031**	.483	2.073

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-1.97494969E-1	2.04033232E0	.46981463	.320319411	108
Residual	-7.960361242E-1	1.364780903E0	-2.254819274E-16	.323154639	108
Std. Predicted Value	-2.083	4.903	.000	1.000	108
Std. Residual	-2.369	4.062	.000	.962	108

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

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

H_{03}: Level of public disclosure (using LIPDI) does not influence Return on Equity of Indian life insurers

Table 9 shows the model summary where the R square value is 55.1% and adjusted R square value is 51.9%. It means 51.9% 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 17.363 and is significant at 1% level.

Table – 9 Regression Results - Impact of Level of Public Disclosure on Return on Equity

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
1	.742[a]	.551	.519	.290375763	2.020

Analysis of Variance

Model		SS	df	Mean Square	F	Sig.
1	Regression	10.248	7	1.464	17.363	.000[a]
	Residual	8.347	99	.084		
	Total	18.596	106			

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	4.722	.855		5.522	.000		
LIPDI	**-5.524**	**.842**	**-.465**	**-6.563**	**.000***	.903	1.107
LIQ	.485	.213	.158	2.280	.025**	.943	1.061
LAP	-.174	.174	-.074	-.999	.320	.822	1.217
IPL	.483	.211	.155	2.287	.024**	.984	1.017
MS	-.213	.078	-.225	-2.717	.008*	.661	1.514
PG	.005	.005	.085	1.091	.278	.748	1.336
LnNP	.044	.012	.280	3.639	.000*	.768	1.303

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, LIPDI, PG, MS b. Dependent Variable: ROE

*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 LIPDI, viz., .465, is negative and significant. Hence, the Null hypothesis, H_{03}, 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 2.020 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_{04}: Level of public disclosure (using LIPDI) does not influence Return on Assets of Indian life insurers

Table – 10 Regression Results - Impact of Level of Public Disclosure on Return on Assets

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
1	.633[a]	.401	.352	.174579056	1.907

Analysis of Variance

Model		SS	df	Mean Square	F	Sig.
1	Regression	1.979	8	.247	8.115	.000[a]
	Residual	2.956	97	.030		
	Total	4.935	105			

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-.278	.522		-.531	.596		
LIPDI	-.052	.546	-.009	-.095	.925	.733	1.364
CAP	-.064	.021	-.326	-2.991	.004*	.520	1.922
SOL	.027	.014	.156	1.901	.060***	.915	1.093
AQL	-.093	.047	-.158	-1.977	.051**	.966	1.035
LAP	-.272	.105	-.224	-2.599	.011**	.834	1.199
PG	-.005	.003	-.142	-1.460	.148	.657	1.522
UWP	.240	.159	.151	1.507	.135	.617	1.621
LnNW	.026	.026	.099	1.027	.307	.661	1.512

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, LIPDI, 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 40.1% and adjusted R square value is 35.2%. It means 35.2% 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 8.115 and is significant at 1% level. It is also clear that the coefficient value of LIPDI, viz., .009, is negative but is not significant. Hence, the Null hypothesis, H_{04}, is accepted. Thus, *level of public disclosure (using LIPDI) does not significantly influence Return on Assets of Indian life insurers.*

The Durbin Watson value of 1.907 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 public disclosure (using LIPDI) does not influence Return on Sales of Indian life insurers

Table – 11 Regression Results - Impact of Level of Public Disclosure on Return on Sales

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
1	.690[a]	.476	.428	.288408932	1.852

Analysis of Variance

Model		SS	df	Mean Square	F	Sig.
1	Regression	7.411	9	.823	9.899	.000[a]
	Residual	8.152	98	.083		
	Total	15.562	107			

Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-1.065	.925		-1.152	.252		
LIPDI	.964	.986	.092	.978	.330	.610	1.638
SOL	.071	.025	.234	2.875	.005*	.805	1.242
AQNL	.808	.584	.136	1.383	.170	.555	1.801
AQL	-.176	.077	-.170	-2.284	.025**	.963	1.038
LIQ	.408	.219	.146	1.858	.066***	.864	1.158
LAP	-.632	.162	-.295	-3.891	.000*	.929	1.076

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
PG	-.028	.004	-.496	-6.458	.000*	.905	1.105
UWP	.600	.256	.214	2.340	.021**	.641	1.559
LnNW	-.008	.042	-.017	-.194	.847	.657	1.522

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, LIPDI, UWP, AQNL b. Dependent Variable: ROS

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

Table 11 shows the model summary where the R square value is 47.6% and adjusted R square value is 42.8%. It means 42.8% 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 9.899 and is significant at 1% level.

It is also clear that the coefficient value of LIPDI, viz., .092, is positive but is not significant. Hence, the Null hypothesis, H_{05}, is accepted. Thus, *level of public disclosure (using LIPDI) does not significantly influence Return on Sales of Indian life insurers.*

The Durbin Watson value of 1.852 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 impact of level of public disclosure on the profitability of Indian life insurers, the LIPDI 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

Vari-ables	LIPDI	NPR	ROE	ROA	ROS	LnTAA	LnNP	LnNW	AQNL	REAI	IPNL	IPL	MS	AQL	SOL	LIQ	LAP	PG	UWP	CAP
LIPDI	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 the size of the life insurer (as explained by the Net Worth) has a significant positive relationship with the level of public disclosure. But, Asset Quality Non-Linked, Reinsurance and Actuarial Issues, Non-Linked Investment Performance, Management Soundness and Return on Equity have significant negative relationship with the level of public disclosure. Thus, level of public disclosure of Indian life insurers is determined by size, besides the performance indicators such as Asset Quality Non-Linked, Reinsurance and Actuarial Issues, Non-Linked Investment Performance, Management Soundness and Return on Equity. Level of public disclosure negatively and significantly

influences profitability in terms of Return on Equity of Indian life insurers.

In the process of moving towards the Solvency II regime, the Indian life insurance sector has to make improvements in reporting, auditing, and accounting requirements. This requires the public disclosures to further provide statements containing detailed disclosures on policy lapsations, expenses of management, breakup of commissions paid to different intermediaries, segment-wise disclosure on premium earned under different policy types, uniform presentation of individual and group claims data, grievance received and redressed under different heads by the life insurers. The regulator should also make it mandatory for the life insurers to disclose the annual reports on their websites. 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

1 Rastogi, S., & Sarkar, R. (2006). Enhancing Competitiveness: The Case of the Indian Life Insurance Industry. *Conference on Global Competition & Competitiveness of Indian Corporate* (pp. 559-568). India: IIMK and IIML.

2 NAIC. *State Insurance Regulation: History, Purpose and Structure.* Available at http://www.naic.org/documents/consumer_state_reg_brief.pdf

3 Bahna-Nolan, M., Isherwood, J., Paton, B., Scheinerman, D., Schlinsog, J., Sen, S., et al. (2013). *Life Insurance Regulatory Structures and Strategy: EU compared with US.* Committee on Finance Research and CAS, CIA, SOA Joint Risk Management Section. Arlington, Virginia: Casualty Actuarial Society, Canadian Institute of Actuaries, Society of Actuaries.

4 KPMG. (2011). *Solvency II.* Avaiable at http://www.kpmg.com/US/en/Issues AndInsights/ArticlesPublications/Documents/solvency-II.pdf

5 Europrean Comission. (2013).*Latest Developments.* Avaiable at http://ec.europa.eu/internal_market/insurance/solvency/latest/index_en.htm

6 IRDA. (2007, July 12). *History of Insurance in India.* Retrieved January 31, 2012, from www.irda.gov.in: Available at http://www.irda.gov.in/ADMINCMS/cms/NormalData _Layout.aspx?page=PageNo4&mid=2

7 International Monetary Fund. (2013). *India: Financial System Stability Assessment Update.* IMF Country Report No.13/8. Monetary and Capital Markets and Asia and Pacific Departments. Washington, D.C.: International Monetary Fund.

8 IRDA. (2013). *Indian Insurance in the Global Scenario-Annual Report 2012-13.* Hyderabad : Insurance Regulatory Development Authority.

9 Narayan, J. H. (2010). Targeting Total Transparency – Through Public Disclosures. *IRDA Journal , VIII* (9), 3.

10 Beaver, W. H. (1966). Financial Ratios as Predictors of Failure. *Empirical Research in Accounting: Selected Studies, Supplement to Journal of Accounting Research , 4,* 71-111.

11 Denenberg, H. S. (1967). Is "A-Plus" Really a Passing Grade? Insurer Risk Capacity and Financial Ratings: The Use of Financial Ratings of Insurance Reporting Services to Avoid Potentially Insolvent or Otherwise Delinquent Insurers. *The Journal of Risk & Insurance , 34,* 371-384.

12 Allison, B. (1998). Analysts ask Insurers for Better Disclosure. *National Underwriter/ Life & Health Financial Services , 102* (46), 38.

13 Butt, M. (2007). Insurance, Finance, Solvency II and Financial Market Interaction. *The Geneva Papers on Risk and Insurance - Issues and Practice , 32* (1), 42–45.

14 Bill, C. (1997). Rise of the Insurance Webmasters. *Best's Review / Property-Casualty Insurance Edition , 98* (7), 84.

15 Franzis, J. P. (2000). The Use of the Internet and Electronic Commerce within the Property and Casualty Insurance Industry. *CPCU Journal , 53* (2), 90-105.

16 Patten, D. M. (2002). Give or Take on the Internet: An Examination of the Disclosure Practices of Insurance Firm

Web Innovators. *Journal of Business Ethics* , *36* (3), 247-259.

17 Yao, J. (2004). Ecommerce Adoption of Insurance Companies in New Zealand. *Journal of Electronic Commerce Research* , *5* (1), 54-61.

18 Pollalis, Y. A., & Vozikis, A. (2007). Insurance and the Internet: Evaluating the E-Business Context of Insurance Companies in Greece. *Spoudai* , *57* (3), 9-33.

19 Adams, M. (1997). Ritualism, Opportunism and Corporate Disclosure in the New Zealand Life Insurance Industry: Field Evidence. *Accounting, Auditing & Accountability Journal* , *10* (5), 718-734.

20 Janvrin, D. J., & Kurtenbach, J. M. (2006). The Influence of Disclosure Regulation on Selective Disclosure: Impact on Difficult-to-Measure Reporting Activities and the Importance of Assurance Services. *Accounting and the Public Interest* , *6*, 70-94.

21 Tudini, E., Forte, G., & Mattei, J. (2011). *The Value Relevance of Embedded Value Disclosures: Evidence from European Life Insurance Companies.* Available at SSRN: http://ssrn.com/abstract=1911372 or http://dx.doi.org/10.2139/ssrn.191137

22 Nissim, D. (2010). *Analysis and Valuation of Insurance Companies.* Industry Study No. 2, Columbia University, Centre for Excellence in Accounting and Security Analysis.

23 Gaa, J. C., & Krinsky, I. (1988). The Demand for Regulation of Financial Disclosures: The Case of the Insurance Industry. *Journal of Business Ethics* , *7* (1/2), 29-39.

24 KPMG Report. (2008). *Financial Institution Risk Disclosure Best Practice Survey: Cost-efficient Ways to Improve Transparency Exist.* KPMG.

25 PricewaterhouseCoopers. (2009). *Making Sense of the Numbers-Analysts' Perspectives on Current and Future Reporting in the Insurance Industry.* U.K.

26 Hunter, S. A., & Murphy, S. (2009). Impact of Internet Financial Reporting on Emerging Markets. *Journal of International Business Research* , *8* (2), 21-41.

27 Centre for Strategy and Evaluation Services. (2011). *Disclosure of Non-Financial Information by Companies.* DG Internal and Market Services. Kent, United Kingdom: European Commission.

28 Prefontaine, J., Desrochers, J., & Godbout, L. (2011). The Informational Content of Voluntary Embedded Value (EV) Financial Disclosures by Canadian Life Insurance Companies during the Recent Period of Market Turmoil. *International Business & Economics Research Journal* , *10* (4), 1-15.

29 Adams, M., & Hossain, M. (1998). Managerial Discretion and Voluntary Disclosure: Empirical Evidence from the New Zealand Life Insurance Industry. *Journal of Accounting and Public Policy* , *17* (3), 245-281.

30 Horing, D., & Grundl, H. (2011). Investigating Risk Disclosure Practices in the European Insurance Industry. *The Geneva Papers on Risk and Insurance - Issues and Practice* , *36* (3), 380-413.

31 *Do Annual Reports give the Information Stakeholders Need? An Analysis of Disclosure Practices in the European Insurance Industry.* (n.d.). Available at http://www.adeimf.it/new/images/stories/Convegni/capri_2012/paper/Paper_Malafronte.pdf

32 Hemrit, W., & Arab, M. B. (2011). The Disclosure of Operational Risk in Tunisian Insurance Companies. *The Journal of Operational Risk* , *6* (2), 69–111.

33 Moradi, M., Salehi, M., & Arianpoor, A. (2011). A Study of the Reasons for Shortcomings in Establishment of Internet Financial Reporting in Iran. *African Journal of Business Management* , *5* (8), 3312-3321.

34 IAIS. (2002). *Guidance Paper on Public Disclosure by Insurers.* Guidance paper No. 4, Basel, Switzerland: International Association of Insurance Supervisors .

35 Charumathi, B. (2011). Extent of Information Disclosure by Indian Life Insurance Companies on their Websites – An Empirical Study. *Annual Conference Proceedings of Accounting & Finance* (pp. 68-73). Singapore: GSTF.

36 Charumathi, B. (2013). Website Disclosures by Indian General Insurers - A Content Analysis. *Journal of Banking Information Technology and Management* , *10* (1), 23-34.

37 Charumathi, B., & Nithya, K. (2012). Public Disclosure by Indian Life Insurers – An Empirical Study. *Independent Business Review* , *5* (2), 47-70.

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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