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The Impact of Financial Strength Rating Criteria on Operating Return on Equity of Indian Life Insurers - An Empirical Study

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ABSTRACT

Credit rating for insurance companies is an independent opinion on an insurer's financial strength and ability to meet its ongoing insurance policy and contract obligations. For this, credit rating agencies world over adopt a comprehensive quantitative and qualitative evaluation of a company's balance sheet strength, operating performance and business profile. The framework for rating insurance companies encompasses three broad sources of risk, viz., business risk, financial risk and management risk. Around the globe, credit ratings for insurance companies may be given for a) any borrowing programme of an insurer and b) financial strength. As normally insurance companies do not borrow, Financial Strength Rating (FSR) is popular among insurers. Financial strength refers to the insurer's ability to meet all its policy holders' obligations arising from its normal course of operations. This FSR will help the company to boost customers' confidence on the insurers' stability and lure investors besides enhancing insurers' credibility with reinsurers. In spite of good credit rating, global insurers (for financial guarantee) have failed during the global financial crisis Sebastian Schich (2009). But, insolvency of insurers is not prevalent in India. Further, as only few insurers have got credit rating voluntarily, how do financial strength rating criteria (used by credit rating agencies) impact the financial performance of Indian life insurers remains an empirical question and this study tries to close this gap. In this empirical study, cross-section data multiple linear regression model is used and the financial strength rating criteria specific to company characteristics such as insurance leverage, lapse ratio, investment performance, underwriting risk, expense ratio and liquidity are regressed against Operating Return on Equity (OROE) which is the dependent variable. The sample includes all the 23 life insurers (1 public and 22 private) and data pertaining to three financial years, viz., 2008-09, 2009-10 and 2010-11 are taken. It is found that the rating criteria such as insurance leverage, lapse ratio, investment performance and underwriting risk influence the financial performance of Indian life insurers.

Keywords: Credit Rating, Financial Strength Rating, Operating Return on Equity, Indian life insurers

INTRODUCTION

Credit rating for insurance companies is an independent opinion on an insurer's financial strength and ability to meet its ongoing insurance policy and contract obligations (Best's Credit Rating Methodology, 2011). For this, credit rating agencies world over adopt a comprehensive quantitative and qualitative evaluation of a company's balance sheet strength, operating performance and business profile. The rating will help the company to boost customers' confidence on the insurers' stability and lure investors besides enhancing an insurers' credibility with reinsurers. Insurance professionals also depend on this rating to assess the creditworthiness of an insurer's operations, to evaluate prospective reinsurance accounts, to compare company performance and financial condition. With high awareness level of insurance customers about how regional, political and economic instabilities can affect a marginal company, rating is an additional important factor in the customers' decision-making process to purchase insurance.

INSURANCE MARKET - GLOBAL AND INDIAN SCENARIO

Insurance industry, the world over forms an integral part of the financial services sector and plays a pivotal role in the economic growth of an economy. A well-developed insurance market paves way for efficient resource allocation through transfer of risk and mobilization of savings. Insurance industry is well developed in economies such as the US, Europe, Japan, and South Korea. Emerging markets are found throughout Asia, specifically in India and China, and are also in Latin America. In 2012, the global insurance market is forecast to have a value of $4,608.5 billion, an increase of 24.9% since 2007. Life insurance dominates the global insurance market, accounting for 59.7% of the market?s value.

The insurance market in India has witnessed dynamic changes including entry of a number of global insurers in both life and general segment. Life Insurance industry in India is ranked 9th among the 156 countries, during 2010-11 and the Indian non-life insurance industry improved in its global ranking to 19th in comparison to 26th in last year. The Indian insurance sector was dominated by the state owned Life Insurance Corporation and the General Insurance Corporation along with its four subsidiaries. The process of re-opening the sector had begun in the early 1990s and following the recommendations of the Malhotra Committee report, in 1999, the Insurance Regulatory and Development Authority (IRDA) was constituted as an autonomous body to regulate and develop the insurance

industry. The key objectives of the IRDA include promotion of competition so as to enhance customer satisfaction through increased consumer choice and lower premiums, while ensuring the financial security of the insurance market. At present, the Indian insurance sector is a colossal one and is growing at a speedy rate of 15-20%. In exercise of the powers laid down in Section 14 (2) of the IRDA Act 1999, IRDA regulates, promotes and ensures an orderly growth of the insurance business for the benefit of all the stakeholders and to provide long term funds for accelerating the growth of the economy. Insurance density of life insurance sector had gone up from USD 9.1 in 2001 to USD 49.0 in 2011. Insurance penetration had gone up from 2.15% in 2001 to 3.40% in 2011. Market share of LIC increased marginally from 69.77% in 2010-11 to 70.68 per cent in 2011-12. The market share of private insurers has gone down marginally from 30.23% in 2010-11 to 29.32% in 2011-12.

CREDIT RATING OF INSURANCE FIRMS

Life insurers are custodians and managers of substantial investments of individuals; and policyholders need to be confident that their insurer will be able to meet its promised liabilities in the event that claims are made under a policy. Regulatory authorities therefore seek to ensure that the financial performance of life insurance companies is in a sound condition. Financial performance in general is defined as the ability of the business to utilise its assets in order to generate revenues in an efficient manner. Berger et al. (1997) contend that the factors underpinning the financial performance of financial services firms are often difficult to discern because of the intangible nature of outputs and the lack of transparency over resource allocation decisions. In this context, a financial strength rating is imperative given the growing customer base in a country like India and the long tenor of life insurance contracts.

Around the globe, credit ratings for insurance companies may be given for a) any borrowing programme of an insurer and b) financial strength. As normally insurance companies do not borrow, financial strength rating (FSR) is popular among insurers (www.caricris.com). Financial strength refers to the insurer's ability to meet all its policy holders' obligations arising from its normal course of operations. The framework for rating insurance companies encompasses three broad sources of risk, viz., business risk, financial risk and management risk (www.icra.in). Business risk analysis includes business fundamentals of the insurer, the characteristics of the industry, growth prospects of the industry, competitive market position, underwriting and reinsurance policies, product mix

and importantly the quality of asset mix. Management risk analysis deals with competence, risk appetite and integrity of the management. Financial risk analysis is done through analysing important ratios of financial performance besides managing required solvency margin.

The agencies involved in assigning credit rating for the financial services industry (including insurance services) in India are, CRISIL, ICRA and CARE. Though credit rating for Indian insurance companies is not mandatory, a few insurance companies have voluntarily obtained ratings annually from these agencies especially for their claims paying ability. The rating agencies in India follow a comprehensive methodology involving analysis of industry risk (external environment), business risk (relative business position in the industry), financial risk (capitalisation and profitability that determine the financial strength) and parentage (parental support) (Bhatia, 2007). The Indian credit rating agencies provide standalone assessments for the industry as a whole and insurance company in particular apart from providing the crucial parental support for start-up insurance ventures (www.crisil.com).

The parameters used for analysing the financial risk profile of an insurer include financial performance of both underwriting and investment operations, capitalisation levels, capital adequacy and solvency margins, loss provisioning policies, accounting and valuation policies, earnings and profitability, liquidity and financial flexibility (www1.worldbank.org).

A REVIEW OF LITERATURE

A few relevant research studies on the determinants of financial performance of insurance firms are presented below: Adams and Buckle (2003) studied the determinants of financial performance in the Bermuda insurance market. The financial performance was measured using a single variable which captured the difference between investment management and underwriting risks of an insurance company, the two major economic activities of an insurance company. Using panel data for 1993-1997, it was found that, highly leveraged, low liquid companies and reinsurers have better operational performance than low leveraged, highly liquid companies and direct insurers. Performance was positively related to underwriting risk but the size of companies and the scope of their activities were not found to be important explanatory factors. Browne et al. (2003) combined market and economic factors with insurer specific data to form dynamic financial models of life insurers. Empirical analysis was based on annual data from 1985 through 1995 for 1,593 life insurers. A relationship between various broader

measures of life insurer performance, financial statement variables, and temporal economic and market conditions have been tested. Return on Equity, Return on Assets and Percentage change in capital and surplus were the measures used for analysing the financial performance of insurance companies. The study found that, after accounting for differences across insurers, life insurer performance was positively related to portfolio returns on bonds and disposable personal income per capita and negatively related to unanticipated inflation. Over the sample period, larger insurers with fewer assets in separate accounts and lower levels of insurance and financial and leverage produced higher nominal and risk-adjusted returns.

McShane et al. (2010) opined that fragmented regulation of the US life insurance industry provided an especially rich environment for testing the effects of regulatory competition. Impact of regulatory competition on the insurers' profitability had been tested in respect of life and health insurers operating in the United States of America, during the period 1999-2003. Profitability has been measured as Operating Return on Equity because state regulators generally focus on income and book equity to assess insurer viability and is a precise indicator of the effect of regulation on insurer profitability capturing both insurance underwriting and investment portfolio activities. Operating income was estimated as net income before federal income taxes and policyholder dividends. Positive relations between regulatory competition and profitability measures for this industry have been found having practical implications for the debate over federal versus state regulation of insurance and financial services in the US. Klumpes (2005) examined whether senior management of life insurance companies in the United Kingdom, used accounting vs. projected cash-flow-based financial performance measures for both managerial performance evaluation and strategic budgetary planning and control purposes. A survey was employed to identify what economic and organizational factors could condition managerial propensity to use three alternative measures: traditional Accounting-based measures, Economic Value Added (EVA) and multiperiod, actuarial cash flow based measures such as embedded value (EV). The results suggested that the use of EV for strategic management planning and control purposes by the CEOs of life insurance companies, were strongly conditioned by the firm's ownership structure. CEOs of stock firms were more likely to use financial performance measures that involve cash-flow projections for strategic budgeting and planning purposes than are CEOs of mutual firms.

Njegomir et al. (2011) analysed market structure, liberalisation and performance relationship for the non-life insurance industry in the ex-Yugoslavia region using country-specific fixed effects models for panel data for the period

covering 2004-2008. The Structure-Conduct-Performance hypothesis was tested using three models capturing influences of market structure and liberalisation on market profitability. Firstly, market structure, liberalisation and performance were put in relation with the strength of economy and corresponding rate of return. The second model connected former with the number of competitors and their dominant line of insurance. Threat of substitutes was used as a control variable for the third model. The research results indicated strong influence of market structure and liberalisation on market profitability. Spiller (1972) compared the performance of stock and mutual life insurance companies which operated in New York State from 1952 through 1966 under similar conditions and constraints. The sample for the study included 46 firms representing 27 mutuals and 19 stock companies which operated in all the 50 states. Performance comparisons were defined as percentage increase in assets and percentage change in net premiums from 1952 to 1966. Although the observed stocks and mutuals differed in size and product mix, the performance differences was attributed to ownership. On testing the relationship between benefits payout and ownership, it was found that benefits payout was not found to be a dominating factor on ownership of stock and mutual insurance companies.

Adams (1996) investigated New Zealand life insurance industry, using 1988-1993 data to empirically test the relationship between investment earnings and organisational characteristics of life insurance firms. 84 mutuals and 109 stock companies were examined for the six-year period using a pooled Weighted Least Squares regression model. The results indicated that investment earnings were higher for stock companies than for mutuals and were also positively associated with the size, leverage and underwriting risk of life insurance firms. Life insurance firms holding proportionately more financial assets than non-financial assets had low investment yields and the liability structure of life insurance firms was unrelated to their investment earnings. Connelly and Limpaphayom (2004) showed that board composition can be beneficial even for firms with limited managerial discretion by examining the relation between board characteristics and firm performance as measured by profitability and underwriting risk among life insurance companies in Thailand. The sample consisted of 24 life insurance companies registered in Thailand during 2000-2001. Board characteristics were measured with two variables, namely board size and board composition. The five profitability measures were defined as operating return on assets, return on assets, return on premium, return on equity, and return on investments. Empirical evidence indicated that board composition had a positive relation to profitability and a negative relation with the underwriting risk of life insurance firms. Board size did not have any relation with firm performance.

Chidambaran et al. (1997) presented an empirical analysis of the economic performance of the U.S. property-liability insurance industry, using estimations across 18 lines of insurance for the years 1984 through 1993 across lines of insurance. It adopted an industrial organization approach, focusing on the economic loss ratio as a measure of pricing performance. The economic loss ratio is the present value of the stream of losses incurred to net premiums written, adjusted for expenses and dividends to policyholders. The concentration ratio for the line and the share of direct writers in the line were both found to be significant determinants of performance. The results were consistent with shortcomings in competition in some insurance lines. Yang (2007) studied the effect of financial independence on the performance of life insurance companies in Taiwan after the Financial Holdings Law came into effect in June 2002. Financially dependent companies which were owned and were part of holding companies, and independent companies which were still owned by themselves and not joined such holding companies were studied. The sample consisted of 13 companies that were independent and 3 companies that were dependent during the period from 2001 to 2002. The research compared the financial performance and the non-financial performance of the two groups of companies. Data Envelopment Analysis (DEA) was employed to measure the non-financial business performance of the companies, using input and output variables and Financial Rate Analysis (FRA) was used to measure the financial performance of the companies in different situations. DEA and FRA results were then used to investigate whether the performance of life companies was altered by them 'joining together' in holding companies or remaining independent, outside such companies. There was neither improvement in the financial nor the non-financial performance of the dependant companies relative to the independent companies over the period of the study. This suggested that the performance of life insurance companies may not be improved by them joining financial holding companies.

Ikonić et al. (2011) analysed the performance of insurance companies in Serbia by applying the CARMEL method which included indicators for the presentation of quantitative criteria for the purpose of monitoring and analyzing the profitability of insurance companies. The results pointed out that an insurance company may achieve and keep desirable level of profitability if it has an adequate level of capital. Transparency of business operations had been promoted since annual reports of insurance companies are available to the public on the Internet in the Serbian insurance market. Lai and Limpaphayom (2003) examined the impact of organizational structure on firm performance, incentive problems, and financial decisions in the Japanese property-casualty insurance industry. Stock companies that belong to one of six horizontal keiretsu groups had lower

expenses and lower levels of free cash flow than independent stock and mutual insurance companies. Keiretsu insurers also had higher profitability and higher loss ratios than independent insurers. It was also evident that mutual insurers have higher levels of free cash flows, higher investment incomes, and lower financial leverage than their stock counterparts. Overall, empirical evidence suggested that each structure had its own comparative advantage.

The studies relating to credit rating and performance of insurers include the following: Ambrose and Seward (1988) incorporated Best's ratings into the discriminant analysis through a system of dummy variables. Best's ratings were then compared to the results obtained by the use of financial variables. Finally, a two-stage discriminant technique was introduced and its results were shown to be better for predicting insolvency for property-liability firms. Ambrose and Carroll (1994) critically examined the predictive ability of Best's ratings in identifying financially distressed insurance companies in the context of insolvency of companies with high Best rating. The efficiency of Best's recommendations had been combined with Insurance Regulatory Information System (IRIS) ratios, and other financial measures to analyse their statistical ability to classify solvent and insolvent life insurers. The sample included life insurers over the period 1969 through 1986 and applying the models to a holdout sample for 1987 through 1991. The financial variables and IRIS ratios outperformed Best's recommendations in distinguishing between the two groups in a logit model. However, combining all three types of predictors into one model provided the most accurate classification of solvent or insolvent life insurers.

Grace et al. (1998) compared the effectiveness of Financial Analysis Solvency Tracking (FAST) system with Insurance Regulatory and Information System (IRIS) in the solvency prediction of insurance companies. The study found that FAST system of solvency surveillance would be more accurate with the introduction of additional variables in respect of life and health insurers. Steven and David (1999) investigated the factors that influence the decision to obtain a rating or multiple rating, the determinants of rating for three major rating agencies and reasons for the rating differences across agencies. Schich (2009) found that the large insurers have lost their triple-A rating status (core of their business model) during the global financial crisis. Doherty, Kartasheva, and Phillips (2011) examined how the entry of a new credit rating agency to the market served by an incumbent monopolistic credit rating agency changes the information content of ratings.

RESEARCH GAP

Studies on financial performance of insurance companies have analysed the impact of underwriting risks and investment performance on the profitability of insurance companies using firm specific factors alone or along with economic and market variables, impact of board characteristics, regulations of apex bodies, etc among others. It has been found that underwriting risks, investment performance, liquidity, leverage are some of the factors that have affected the financial performance of insurance companies. Studies in the developed economies have analysed the predictive ability of credit ratings in identifying the insolvent insurers. In spite of good credit rating, global insurers (for financial guarantee) have failed during the global financial crisis (Schich, 2009). But, insolvency of insurers is not prevalent in India. Further, as only few insurers have got credit rating voluntarily, how do financial strength rating criteria (used by credit rating agencies) impact the financial performance of Indian life insurers remains an empirical question and this study tries to close this gap.

OBJECTIVES OF THE STUDY

This paper aims to study the impact of financial strength rating criteria on the financial performance of Indian life insurers taking the Operating Return on Equity as the dependent variable.

RESEARCH METHODOLOGY

This is an empirical study. It has taken all the 23 life insurers (1 public and 22 private) as sample (Refer Appendix). It has taken data pertaining to 3 financial years, viz., 2008-09, 2009-10 and 2010-11. The required data were taken from the IRDA data base, IRDA annual reports and the public disclosures of the respective life insurance companies. This study employs cross-section data multiple linear regression model. For this purpose, the rating criteria specific to company characteristics such as insurance leverage, lapse ratio, investment performance, underwriting risk, expense ratio and liquidity are regressed against Operating Return on Equity. These variables are selected based on the earlier studies and the rating criteria used by credit rating agencies. The variables used and the formulae are shown in Table I.

Table 1: Variables Chosen for the Study

Variables	Formulae
Operating Return on Equity (OROE)	Net Income before Tax / (Capital + Surplus)
Insurance Leverage (LEV)	Mathematical Reserves / (Capital + Surplus)
Lapse Ratio (LR)	Lapses during year/Arithmetic mean of the business in force at the beginning and at the end of the year
Investment Performance (IP)	Total Investment Income / Total Investment
Underwriting Risk (UWR)	Benefits paid / Net Premium
Expense Ratio (ER)	Operating Expense (including Commission expenses) /Net Premium
Liquidity (LIQ)	Outstanding claims/cash and bank balances

Note: Compiled by the researcher based on earlier studies and rating criteria of credit rating agencies

The linear multiple regression model developed for this study is as follows:

$$OROE = \beta_0 + \beta_1 LEV + \beta_2 LR + \beta_3 IP + \beta_4 UWR + \beta_5 ER + \beta_6 LIQ + \varepsilon_i$$

In this study, Operating return on Equity (OROE) is a dependent variable representing financial performance. OROE captures returns from both investment and underwriting activities. OROE is a ratio of Net income before tax to Capital and Surplus. (Michael et al., 2010; Cummins & Nini, 2002). The credit rating agencies in India analyse the insurance industry risk with special focus on the importance of insurance for the economy as whole, industry size, entry barriers, growth potential, cyclicality, stability of underwriting performance and regulatory policy. The company specific analysis focuses on business risk factors influencing the company like business mix, pricing, underwriting policy, distribution channel, reinsurance policy, asset management, technology and risk management. Financial risk factors include capitalisation, financial performance, liquidity and financial flexibility.

Credit rating agencies consider the variables such as income levels and growth rates, expense ratios, claims ratios, combined ratios as well as capitalisation and liquidity ratios for analysing financial performance. This present study is confined to examine the impact of the select important financial strength rating criteria (after iterations of regression models) on the financial performance of Indian life insurers. Six Independent variables are considered for this study as shown in model. This study also tested the assumptions of the linear multiple regression model, viz., multicollinerity and homoscedasticity.

HYPOTHESES

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

H_0-1: There is no relationship between Leverage and Operating return on Equity.
H_0-2: There is no relationship between Lapse Ratio and Operating return on Equity.
H_0-3: There is no relationship between Investment Performance and Operating return on Equity.
H_0-4: There is no relationship between Underwriting Risk and Operating return on Equity.
H_0-5: There is no relationship between Expense Ratio and Operating return on Equity.
H_0-6: There is no relationship between Liquidity and Operating return on Equity.

RESULTS AND DISCUSSION

Table II: Descriptive Statistics - Variables of Analysis

Variables	N	Minimum	Maximum	Mean	Std. Deviation
OROE	69	-1.64	1.10	-.0711	.42858
LEV	69	.00	974.49	47.4879	187.43690
LR	69	.00	.81	.2106	.18715
IP	69	-.19	.31	.0695	.11930
UWR	69	.00	.59	.1380	.15501
ER	69	.12	12.06	.7228	1.57881
LIQ	69	.00	.61	.1177	.14294
Valid N (listwise)	69				

Source: IRDA Data Base and Annual Reports of respective companies.
Note: Results obtained by using SPSS 17.0.

Table II portrays the descriptive statistics for the variables used in this study. The Operating Return on Equity [Net Income before Tax / (Capital + Surplus)] averaged - 0.0711 and ranged from -1.64 (Bharti Axa - Private Sector Life Insurer) to 1.10 (Bajaj Allainz - Private Life Insurer). The ratio of leverage (Mathematical Reserves / (Capital + Surplus) had an average of 47.48 and ranged from 0 (IDBI - Private Sector Life Insurer) to 974.49 (Life Insurance Corporation of India - Public Sector Life Insurer). Lapse ratio averaged 0. 2106 and ranged from 0% (IDBI, Canara HSBC and India First - Private Sector Life Insurers) to a maximum of 81% (ICICI - Private Life Insurer). The ratio of investment

performance (Total Investment Income/Total Investment) had an average of 0.0695 and ranged from -19% to 31% (both by ICICI - Private Life Insurer in different years).

The ratio of underwriting risk (Benefits paid / Net Premium) averaged 0.1380 and ranged between 0 (Canara, Aegon, India, Star, DLF and IDBI - Private Life Insurers) and 0.59 (ICICI - Private Life Insurers). The expense ratio (Operating Expenses (including Commission) / Net Premium) had an average of 0.7228 and ranged from 0.12 (SBI Life - Private Life Insurer and Life Insurance Corporation - Public Insurer) to 12.06 (DLF Pramerica - Private Life Insurer). The ratio of liquidity (Outstanding claims / Cash and bank balances) had an average of 0.1177 and ranges from 0 (Birla Sun Life, India First, Bharti Axa, Star Union and DLF Pramerica - Private Life Insurers) to 0.61 (Max New York Life - Private Life Insurer).

Table III: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784[a]	.614	.577	.27882

a. Predictors: (Constant), LIQ, LEV, IP, ER, LR, UWR
b. Dependent Variable: OROE
Note: Results computed by using SPSS 17.0

Table III shows the model summary of the regression for the sample life insurance firms. The value of R is equal to 78.4% and R-Square of the model equal to 61.4%. This means that 61% of the change in the dependent variable, viz., Operating Return on Equity (OROE) is due to the variations in the independent variables used in this model.

Table IV: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.670	6	1.278	16.444	.000[a]
	Residual	4.820	62	.078		
	Total	12.490	68			

a. Predictors: (Constant), LIQ, LEV, IP, ER, LR, UWR
b. Dependent Variable: OROE
Note: Results Computed by using SPSS 17.0

Table IV shows the result of ANOVA. By using the analysis of variance, it is found that F test of the model is equal to 16.444 and is significant.

Table V(a): Regression Coefficient

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	-.236	.067		-3.542	.001	.725	1.379
LEV	**.001**	**.000**	**.316**	**3.413**	**.001***	.892	1.121
LR	**-.642**	**.191**	**-.280**	**-3.358**	**.001***	.930	1.075
IP	**.689**	**.294**	**.192**	**2.343**	**.022****	.655	1.527
UWR	**1.268**	**.270**	**.459**	**4.705**	**.000***	.907	1.103
ER	-.004	.022	-.016	-.194	.847	.944	1.060
LIQ	.390	.244	.130	1.603	.114	.725	1.379

Dependent Variable: OROE; Note: Results computed by using SPSS 17.0
**Significant @ 1% level of significance; ** Significant at 5@ level of significance.*

Table V(b): Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.7088	1.2150	-.0711	.33586	69
Residual	-1.07704	.71619	.00000	.26624	69
Std. Predicted Value	-1.899	3.829	.000	1.000	69
Std. Residual	-3.863	2.569	.000	.955	69

Dependent Variable: OROE; Note: Results computed by using SPSS 17.0.

Insurance Leverage (LEV)

The degree of financial leverage reflects insurance companies' ability to manage their economic exposure to unexpected losses. This ratio represents the potential impact on capital and surplus of deficiencies in reserves due to financial claims. (Adams & Buckle, 2003). This study used the ratio of of Mathematical Reserves to Capital and Surplus as a measure of insurance leverage. The regression result in Table V(a) clearly shows that there is a positive relationship between the operating return on equity and the insurance leverage (Mathematical Reserves/Capital and Surplus). The Beta coefficient for this variable is positive and significant at 1% level of significance with a P-Value of 0.001. Its t-test value is 3.413, which is greater than the critical value and the *null hypothesis H_{01} is rejected.* Hence, *there is a significant positive relationship between operating return on equity and insurance leverage.* The standardised coefficient Beta value is 0.316. Using the standardised coefficient and keeping all the other variables constant, if the insurance leverage increases by 100, operating return on equity

will increase only by 31.6. Thus, it can be concluded that insurers with high leverage will have competitive edge over those with low leverage, in achieving better financial performance.

Lapse Ratio (LR)

A policy is treated as lapsed if the premium is not paid within the grace period. (IRDA Annual Report, 2011). Lapse ratio is defined as the ratio of lapses (including forfeitures) during the year to arithmetic mean of the business in force at the beginning and at the end of the year. The lapse ratio increases mainly due to uncompetitive renewal premiums. Policy lapses are costly to insurers and are a form of disintermediation (Browne et al., 2003). Carson and Dumm (1999) provide evidence that insurer lapse rates are negatively related to life insurance policy performance. Individual Non-linked business policies lapsed has been considered for this study. From the Table V(a), it is clear that there is a negative relationship between the operating return on equity and lapse ratio. The Beta coefficient for this variable (LR) is negative and significant at 1% level of significance with a P-Value of 0.001. Its t-test value is -3.358, which is greater than the table value. Hence, *the null hypothesis H_{02} is rejected.* Thus, *there is a significant negative relationship between the operating return on equity and lapse ratio.*

The Unstandardised coefficient of lapse ratio equals to -0.642 and its standardised coefficient Beta value is - 0.280. Using the standardised coefficient and keeping all the other variables constant, if the lapse ratio increases by 100, the operating return on equity will decrease by 28. Thus, it can be concluded that the insurance firms with high lapse ratio tend to have poor financial performance. It means that the firms with more lapse ratio will get reduced surplus (due to loss of premium and increased cost towards the remaining policies) and hence, the profitability will be reduced. Very high lapse rate may weaken the ability of the insurer to recoup these costs. Thus, lapse ratio is one of the key factors in the managerial framework of life insurers.

Investment Performance (IP)

The investment income forms a major share of the total income of life insurer. As a percentage of total income, it constitutes more than 30% both in the case of public and private life insurers in India. It is an indicator of the efficient investment decisions taken by the investment committee of a particular insurer. It is critical to the financial solidity of the insurer (Chen & Wong, 2004). Hence,

it is a key indicator in deciding the financial performance of an insurer. Ambrose and Carroll (1994) got a better classification when ratio of net investment income to total income was included in their analysis. This study used total investment income as a ratio of total investments across policyholders, shareholders' investments and assets held to cover linked liabilities. Total investment income is the summation of policyholders and shareholders' investment income. From the Table V(a), it is clear that there is a positive relationship between the operating return on equity and investment performance (Total Investment Income/Total Investments). The Beta coefficient for this variable (IP) is positive and significant at 5% level of significance with a P-Value of 0.022. Its t-test value is 2.343, which is greater than the table value. Hence, *the null hypothesis H_{03} is rejected. Thus, there is a significant positive relationship between the operating return on equity and the investment performance.* The Unstandardised coefficient of investment performance equals to 0.689 and its standardised coefficient Beta value is 0.192. Using the standardised coefficient and keeping all the other variables constant, if the investment performance increases by 100, the operating return on equity will increase by 19.2. Thus, it can be concluded that the insurance firms with high investment performance tend to have better financial performance. It means that the firms with more investment income in relation to investments have more surpluses and hence, more operating profit before tax. Further, in India, the regulator prescribes investment norms for the various categories of investment along with the proportion. Hence, all the life insurers are bound to adhere to the investment norms and have minimum risk exposure on investment performance.

Underwriting Risk (UWR)

Underwriting Risk reflects the adequacy, or otherwise, of insurers' underwriting performance (Adams & Buckle, 2003). Sound underwriting guidelines are pivotal to an insurer's financial performance. The underwriting risk depends on the risk appetite of the life insurers. This study has taken the ratio of benefits paid to Net Premium as a measure of underwriting risk. The regression result in Table V(a) clearly shows that there is positive relationship between the operating return on equity and the underwriting risk. The Beta coefficient for this variable is positive and significant at 1% level of significance with a P-Value of 0.000. Its t-test value is 4.705, which is greater than the critical value and *the null hypothesis H_{04} is rejected.* Hence, *there is a significant positive relationship between operating return on equity and underwriting risk.* The standardised coefficient Beta value is 0.459. Using the standardised coefficient and keeping all the other variables constant, if the underwriting risk increases by 100, operating

return on equity will increase by 45.9. Thus, it can be concluded that insurers having high underwriting risk have better financial performance than those that of low underwriting risk.

Expense Ratio (ER)

Expense ratio is an important indicator of earnings and profitability of an insurance company measuring the efficiency of the operations. (Indian Financial Sector Assessment Report, 2009; Das et al., 2003). Expenses include all charges incurred either directly or indirectly, commission payments of all kinds and operating expenses. (IRDA Annual Report, 2011). In India, the regulatory prescriptions on expenses on management are based on the size and age of the insurer. From the Table V(a), it is clear that there is a negative relationship between the operating return on equity and expenses ratio. The Beta coefficient for this variable (ER) is negative and not significant. Its t-test value is -0.194, which is less than the table value. Hence, *the null hypothesis H_{05} is accepted.* Thus, *there is no significant relationship between the operating return on equity and expense ratio.* Insurers' expenses ratio depends on the employment of direct-sale techniques instead of deploying middlemen or their brand name with low advertising expenses or opening of new place of business. Thus, it can be concluded that high expense ratio will have negative impact on the financial performance of life insurers.

Liquidity (LIQ)

Liquidity is the ability of the insurers to pay outstanding claims out of their cash balances. The cash and bank balances are to be kept sufficient to meet the immediate liabilities towards "claims due for payment but not paid". This comfortably covers the incurred but not reported portion of claims liability. This study used the ratio of outstanding claims to cash and bank balances. (Indian Financial Sector Assessment Report, 2009). The regression result in Table V(a) clearly shows that there is positive relationship between the operating return on equity and liquidity. The Beta coefficient for this variable is positive and not significant. Its t-test value is 1.603, which is lower than the critical value and the *null hypothesis H_{06} is accepted.* Hence, *there is no significant relationship between operating return on equity and liquidity.* The standardised coefficient Beta value is 0.130. Using the standardised coefficient and keeping all the other variables constant, if the liquidity increases by 100, operating return on equity will increase by 13. Thus, it can be concluded that insurers with high liquidity are obliged to improve their financial performance.

Heteroscedasticity and Multicollinearity Test

From the Table V(b), 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. From the table VI, it is clear that no two independent variables are highly correlated. Hence, there exists no multicollinearity problem.

Table VI: Pearson Correlation Matrix

	OROE	LEV	LR	IP	UWR	ER	LIQ
OROE	1.000	.572	-.243	.292	.623	-.174	.158
LEV	.572	1.000	-.190	.034	.442	-.081	-.061
LR	-.243	-.190	1.000	.090	.146	-.008	.105
IP	.292	.034	.090	1.000	.232	.022	.072
UWR	.623	.442	.146	.232	1.000	-.257	.131
ER	-.174	-.081	-.008	.022	-.257	1.000	-.163
LIQ	.158	-.061	.105	.072	.131	-.163	1.000

Note:
OREO= Operating Return on Equity
LEV= Leverage
LR= Lapse Ratio
IP=Investment Performance
UWR=Underwriting Risk
ER=Expense Ratio
LIQ= Liquidity

LIMITATION OF THE STUDY

The limitation of the study is that some variables such as industry dynamics, regulatory environment, company's franchise and competitive market position could not be included.

SCOPE FOR FUTURE RESEARCH

This study has considered only six independent variables relating to financial strength rating criteria which impact the performance of the life insurers in India. Future research studies may consider more variables, both industry specific and macro-economic variables considered by the credit rating agencies.

CONCLUSION

This study led to the conclusion that financial performance of life insurers, represented by Operating Return on Equity, is positively and significantly influenced by the rating criteria such as leverage and underwriting risk (Adams & Buckle, 2003) and investment performance (Chen & Wong, 2004). The lapse ratio is negatively but significantly related to the financial performance of life insurers (Browne et al., 2003). The variables such as expenses ratio and liquidity do not significantly influence the financial performance. In view of the unique regulatory environment comprising a hybrid model of regulation with competition, Indian life insurers would increase their financial performance in terms of Operating Return on Equity (OROE) by improving their financial strength rating criteria more efficiently than ever before.

REFERENCES

Adams, M. (1996). Investment Earnings and the Characteristics of Life Insurance Firms: New Zealand Evidence. *Australian Journal of Management, 21* (1).

Adams, M. & M. Buckle (2003). The Determinants of Corporate Financial Performance in the Bermuda Insurance Market. *Applied Financial Economics, Routledge, 13,* 133-143.

Ambrose, J.M. & Carroll, A.M., (1994). Using Best's Ratings in Life Insurer Insolvency Prediction. *The Journal of Risk and Insurance, Tort Reform Symposium, 61*(2), 317-327.

Ambrose, J.M. & J.A. Seward, (1988). Best's Ratings Financial Ratios and Prior Probabilities in Insolvency Prediction. *The Journal of Risk and Insurance, 55,* 229- 244.

Berger, A.N., Cummins, J.D., & Weiss, M.A. (1997). The Coexistence of Multiple Distribution Systems for Financial Services: The Case of Property-Casualty Insurance. *Journal of Business, 70,* 515-46.

Best's credit Rating Methodology (2011). *Global Life and Non-Life Insurance Edition.* A. M. Best Company Inc. Retrieved from http://www.ambest.com/ratings/methodology/bcrm.pdf.

Browne, M.J., James, M.C., & Robert, E.H. (2003). Dynamic Financial Models of Life Insurers. *North American Actuarial Journal, 5* (2), 11-26.

Carson, J.M. & Dumm, R.E. (1999). Insurance Company-Level Determinants of Life Insurance Policy Performance. *Journal of Insurance Regulation, 18,* 195-206.

Chen, R & Wong, K.A. (2004). The Determinants of Financial Health of Asian Insurance Companies. *The Journal Risk and Insurance, 71* (3), 469-499.

Chidambaran, N.K., Pugel, T.A., & Saunders, A. (1997). An Investigation of the Performance of the U.S. Property-Liability Insurance. *The Journal of Risk and Insurance, Symposium on Financial Risk Management in Insurance Firms, 64* (2), 371-382.

Connelly, J.T. & Limpaphayom, P. (2004). Board Characteristics and Firm Performance: Evidence from the Life Insurance Industry in Thailand. *Chulalongkorn Journal of Economics, 16*(2), 101-124.

Cummins, D. & Nini, G. (2002). Optimal Capital Utilisation by Financial Firms: Evidence from the Property-Casualty Insurance Industry. *Journal of Financial Services Research, 21,* 15-53.

Das, U.S., Davies, N., & Podpiera, R. (2003). Insurance and Issues in Financial Soundness. *IMF Working Paper,* WP/03/138.

Doherty, N.A., Kartasheva, A.V., & Phillips, R.D. (2011). Information Effect of Entry into Credit Ratings Market: The Case of Insurers' Ratings. Available at SSRN. Retrieved from http://ssrn.com/abstract=1101700 or http://dx.doi.org/10.2139/ssrn.1101700.

Grace, M., S. Harrington, & R. Klein, (1998). Identifying troubled life insurers: An analysis of the NAIC FAST system. *Journal of Insurance Regulation, 16*, 249-290.

http://www.caricris.com/index.php?option=com_content&task=blogcategory&id=18&Itemid=22.

http://www1.worldbank.org/finance/html/Seminars/2008bankseminar/Docs/G%20-%20Rating%20Agencies%20&%20Their%20Methodologies%20-%20Laura%20Feinland%20Katz.pdf.

Ikonić. D., Arsić, N., & Milošević, S. (2011). Growth Potential and Profitability Analysis of Insurance Companies in the Republic of Serbia. *Chinese Business Review, 10* (11), 998-1008.

Indian Financial Sector an Assessment (2009). *Committee on Financial Sector Assessment*, Volume III, Chapter III, Published by the Government of India and RBI.

IRDA Annual Reports of various life insurers for various years. Retrieved from www.irda.gov.in/ADMINCMS/cms/NormalData_Layout.aspx?page=PageNo764&mid=31.1

Klumpes, P.J.M. (2005). Managerial Use of Discounted Cash-Flow or Accounting Performance Measures: Evidence from the U.K. Life Insurance Industry. The Geneva Papers, 30, 171-186.

Lai, G.C. & Limpaphayom, P. (2003). Organizational Structure and Performance: Evidence from the Nonlife Insurance Industry in Japan. *The Journal of Risk and Insurance, 70* (4), 735-757.

Michael, K.M., Larry, A.C., & Richard, J.B. (2010). Regulatory competition and forbearance: Evidence from the life insurance industry. *Journal of Banking & Finance, 34*, 522-532.

Njegomir, V., Stojic, D., Markovic, D. (2011). Liberalisation Market Concentration and Performance in the Non-Life Insurance Industry of Ex-Yugoslavia. *Ekon Misao Praksa Dbk God*, XX(BR. I), 21-40.

Public Disclosures of Indian Life Insurers. Retrieved from http://www.irda.gov.in/ADMINCMS/cms/frmGeneral_NoYearList.aspx?DF=AR&mid=11.1.

Rating Criteria for Life Insurance Companies (2007). CRISIL Ratings. Retrieved from http://www.crisil.com/Ratings/SectorMethodology/MethodologyDocs/CRISIL-Ratings-crieria-life-insurance-companies_2007.pdf.

Rating Methodology for Domestic Life Insurance Companies, ICRA Ratings. Retrieved from http://www.icra.in/Files/Articles/Life_Insurance-me-18052011.pdf.

Schich, S. (2009). Insurance Companies and the Financial Crisis. OECD *Journal: Financial Market trends, 2*, 1-31. Retrieved from http:// www.oecd.org/dataoecd/0/41/44260382.pdf.

Spiller, R. (1972). Ownership and Performance: Stock and Mutual Life Insurance Companies. The *Journal of Risk and Insurance, 39* (1), 17-25.

Steven, W.P., David, W.S. (1999). Property-Liability Insurer Financial Strength ratings: Differences across rating agencies. *The Journal of Risk and Insurance, 66*(4), 621-642.

Tarun, B. (2007). *CRISIL Methodology for rating Life Insurance Companies.* Retrieved from http://www.actuariesindia.org/CILA/CILA2007/Rating%20Methodology%20for%20Life%20Insurance.pdf.

Yang, H. (2007). The Effect of Financial Independence on the Performances of Life Companies: An Empirical Study. *International Journal of Management, 24* (3), 522-540.

APPENDIX

List of Indian Life Insurance Companies

Abbreviations	Names of the company
	Private Sector
AVIVA	Aviva life insurance company
BAJAJ	Bajaj Allianz life insurance company
BHARTI	Bharti Axa life insurance company
BSLI	Birla Sun life insurance company
CANARA	Canara HSBC OBC life insurance company
DLF	DLF Pramerica life insurance company
EDEL	Edelweiss Tokio life insurance company (came into existence during 2011-12)
FUTURE	Future Generali India Life Insurance Company
HDFC	HDFC Standard Life Insurance Company
ICICI	ICICI Prudential life insurance company
IDBI	IDBI Federal life insurance company
INDIA	India First life insurance company
ING	ING Vysya life insurance company
KOTAK	Kotak Mahindra Old Mutual Life Insurance Company
METLIFE	Met life insurance company
MNYL	Max life insurance company
RELIANCE	Reliance life insurance company
RELIGARE	Aegon Religare life insurance company
SAHARA	Sahara India life insurance company
SBI	SBI life insurance company
SHRIRAM	Shriram life insurance company
STAR	Star Union Dai-ichi life insurance company
TATA	TATA AIA life insurance company
	Public Sector
LIC	Life insurance Corporation of India