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Impact of Corporate Characteristics on Solvency: An Empirical Study of Public Sector General Insurance Companies of India

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Abstract—*Insurance in India, Being an integral part of the financial sector, play a significant role in Indian economy. The insurance sector promotes the safeguard and provides long term funds for infrastructure development. This research study entirely based on secondary data and conduct study during the period of 5 year from 2009-10 to 2013-14 with the application of descriptive method of statistical analysis, multiple regressions. The measure findings of the study is the solvency position of Indian Public Sector Non- Life Insurance Company has been studied and it shows 77% variation due to various independent factors that are taken in to consideration, like age, liquidity, growth, tangibility, and firm size and the rest of the variation are due to the factors which are beyond to the scope of this study.*

Keywords*: Solvency, liquidity, growth, tangibility, age, and firm size.*

1. INTRODUCTION

India's rapid rate of economic growth over the past decade has been one of the more significant Developments in the global economy. This growth has its roots in the introduction of economic Liberalization in the early 1990s, which has allowed India to exploit its economic potential and raise the population's standard of living. Indian insurance industry has seen a significant growth over the past few years on account of growing national economy, increasing per capita income, growing consumer awareness about insurance products, and the entry of foreign players in the Indian market bringing in more innovative products.

1.1 General Insurance Business in India

General Insurance in India has its roots in the establishment of Triton Insurance Company Ltd., in the year 1850 in Calcutta by the British. In 1907, the Indian Mercantile Insurance Ltd was set up. This was the first company to transact all classes of general insurance business, in the year 1850 in Calcutta by the British.

In 1972 with the passing of the General Insurance Business (Nationalization) Act, general insurance business was nationalized with effect from 1st January, 1973. 107 insurers were amalgamated and grouped into four subsidiaries companies:

- National Insurance Company Ltd.
- The New India Assurance Company Ltd.
- The Oriental Insurance Company Ltd and.
- The United India Insurance Company Ltd.

1.2 National Insurance Company Ltd.

NICL is a state wholly owned by Govt. of India. The companies headquarter at Kolkata it was incorporated on December 6, 1906 and nationalized in 1972. National Insurance company network managed by more than 16,000 skilled personnel, his covering the length and breadth of remote rural areas, metropolitan's cities and townships of the country. (www.nicl.org.in)

1.3 The New India Assurance Company Ltd.

New India Assurance Co Ltd, today, is a 100% Govt owned multinational general insurance company operating in 28 countries and headquartered at Mumbai, India. (www.newindia.co.in)

1.4 The Oriental Insurance Company Ltd

It was incorporated at Bombay on 12th September 1947. The Company was a wholly owned subsidiary of the Oriental Government Security Life Assurance Company Ltd and was formed to carry out General Insurance business. The Company was a subsidiary of Life Insurance Corporation of India from 1956 to 1973 (till the General Insurance Business was nationalized in the country). (www.orientalinsurance.org.in)

1.5 The United India Insurance Company Ltd.

United India Insurance Company Limited was incorporated as a Company on 18th February 1938. After Nationalization United India has grown by leaps and bounds and has 18300 work forces spread across 1340 offices providing insurance cover to more than 1 crore policy holders. (www.uiic.co.in)

The insurance sector is a colossal industry and is in an expansion mode growing at an astounding rate of 15-20%. Along with banking services, insurance services constitute 7% to the country's GDP.

2. REVIEW OF LITERATURE

The review of literature of this study gives an idea to emphasize on the unexplored area and to make perfection on the study.

Joo Bashir Ahmad (2013) "Analysis of Financial Stability of Indian Non-Life Insurance Companies", in order to analyze financial stability of non-life insurance companies through the solvency ratio with the respect to solvency norms set by Insurance Solvency International Limited (ISI) and regression factors analysis. The six ratios are employed via net premiums to shareholders funds, change in net premium, underwriting profits to investment income, technical reserves to shareholders funds, technical reserves plus shareholders funds to net premiums and pre-tax profits to net premiums.

Upadhyay Preeti (2013) "Satisfaction of the policy holder's protection in insurance sector: a case study", the main objective is trends analyses of insurance sector prior and after the entry of the private sector insurers; measurements of the satisfaction among the policy holders of public and private insurance companies and identify the causes behind people going for different insurance plans. This is brief survey of literature; types of descriptive in nature, the method were used technical analysis, fundamental analysis and trends analysis. The major finding in this research is private sector insurance companies are moving at a fast pace. The LIC is going to give more reliance to the populations of India.

D. Shreedevi & D. Manimegalai (2013) "A comparative study of public and private non-life insurance companies in India", the objective of this study was comparing the performance of public and private non-life insurance companies in India for the period of 9 year (2002-03 to 2010-11). This study was based on Secondary data, to identify the number of new policies, gross direct premium collected and net claim amounts, U-test was applied. The major finds of this paper was public sector insurers has been done well as compare to the private sector insurers, because of the public sector insurers aggressive pricing and the retention of business.

Mathur Tanuj & Paul Ujjwal Kanti (2014) "Performance Appraisal of Indian Non-Life Insurance Company", in this Research paper measuring the assess the overall technical efficiency of the 20 non-life insurer operating in India. The DEA Model, exogenous variables ,i.e. financial ratio methodology was used.in which finding the 7 insurance company were found completely efficient as derive from overall technical efficiency score and 13 were reported as inefficient , the reason was management expense have a negative impact on technical efficiency.

Rani T. and Shankar H. (2014) "Financial Performance Of General Insurance Business in India", The main objective of this paper is to assess the financial performance in term of capital adequacy and asset quality of five public sector general insurance companies in India on the basis of secondary data, covering period of 10 year from 2003-2004 to 2012-2013.In this study finding the capital adequacy of GICs. The National General Insurance Company Ltd. was found element of high risk in capital adequacy and the asset backing of this company comparatively less than the other companies but quality of assets in terms of equity investment was found to be in similar.

Chandrayya G. (2015) "Opportunities and challenges of insurance industry in India", according to him the insurance sector play an important in the service sector in Indian economy. The major founds was the requirement of marketing strategy should be systematized and effective before the polices issued. The services should be designed to provide the customers at full reliance and satisfactory.

3. RESEARCH METHODOLOGY

3.1 Data collection

The present study covers only secondary data. Data and information have been extracted from the annual handbook of IRDA and respectively selected non-life insurance company sites and their annual reports.

3.2 Sample size

The sample of this research study is four selected non-life insurance companies of India.

3.3 Period of the study

The period of this study was five year (2009-10 to 2013-14).

3.4 Research technique

The collected data has been examined with the help of SPSS. Descriptive study such as mean, standard deviation, regression analysis, correlation, Percentage, normality change, ANOVA, Kolmogorov-Smirnov and Shapiro-Wilk have been achieved objective.

3.5 Scope the study

The scope of this study is limited because it's based on only selected public sector non-life insurance companies.

3.6 Variables Description

In this research study both type of variable has been taken one is dependent (solvency) and another is independent such as liquidity, tangibility, growth, age, and firm size.

3.6 Statement of problem

The Statement of the problem is "Impact of Corporate Characteristics on Solvency: An Empirical Study of Public Sector General Insurance Companies of India"

3.7 Objective and Hypothesis of the study

The objective of the present study is to examine the impact of corporate characteristics on the solvency of public sector general insurance companies of India. Accordingly, the following hypotheses are constructed:

H0 = Corporate characteristics like tangibility, liquidity; firm-size, growth and age have no significant impact on the solvency of general insurance companies.

H1 = Corporate characteristics like tangibility, liquidity; firm-size, growth and age have significant impact on the solvency of general insurance companies.

4. DATA ANALYSIS AND INTERPRETATION

This chapter deals with the empirical analysis and interpretation of results and is divided into four parts.

4.1 Summary Statistics as well as Distribution of Variables

Under this the summary statistics as well as distribution of all the variables under consideration is tested with the help of Kolmogorov-Smirnov test, Shapiro-Wilk test and normal probability plots.

Table 1: Descriptive Statistics

Variables	Range	Minimum	Maximum	Mean	Std. Deviation
Solvency	2.210	1.340	3.550	2.12000	.735191
Tangibility	.586	.335	.921	.52229	.131345
Liquidity	50.174	21.141	71.315	4.21006	16.124683
Firm size	1.150	14.334	15.483	1.46895	.335627
Growth	227.826	-57.617	170.209	1.25834	40.264329
Age	45	63	108	84.50	16.488

The table 1 shows the descriptive statistics comprises of minimum, maximum, mean and standard deviation values for the variables under consideration. The mean value is low in case of tangibility i.e. .921 whereas highest is in case of age. On the other the least amount of Variation is found in case of tangibility as the standard deviation is .131, whereas the highest variation is found in case of growth as the value of standard deviation is 40.26.

Table 2: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Solvency	.243	20	.203	.869	20	And .211
Tangibility	.163	20	.270	.898	20	.237
Liquidity	.256	20	.201	.850	20	.205
Firm size	.198	20	.239	.849	20	.205
Growth	.371	20	.200	.512	20	.200
Age	.197	20	.241	.881	20	.219

The table 2 shows the results of normality test i.e. Kolmogorov-Smirnov and Shapiro-Wilk. The null hypothesis for these test is data is normally distributed, whereas alternative is data set is not normally distributed. Hence we require the acceptance of null hypothesis to regard that the data of variables under consideration is normally distributed. Here in the above table the value of variable under consideration is more than .05 which leads to the acceptance of null hypothesis signifying that data set of variables under consideration is normally distributed.

Normal Q-Q Plots

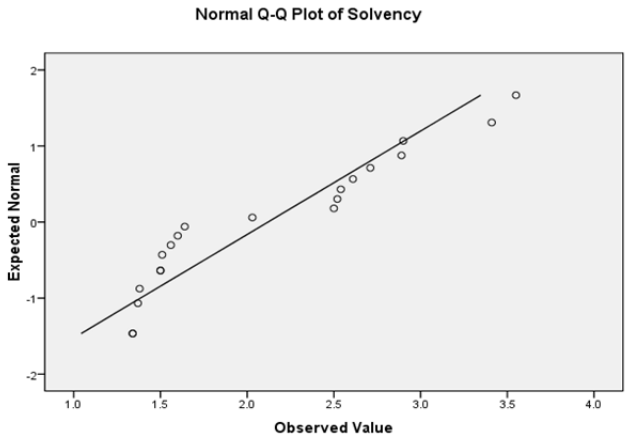


Fig. 1.1: Solvency

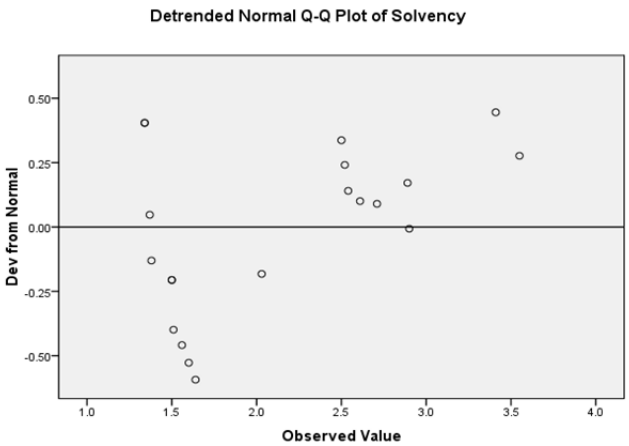
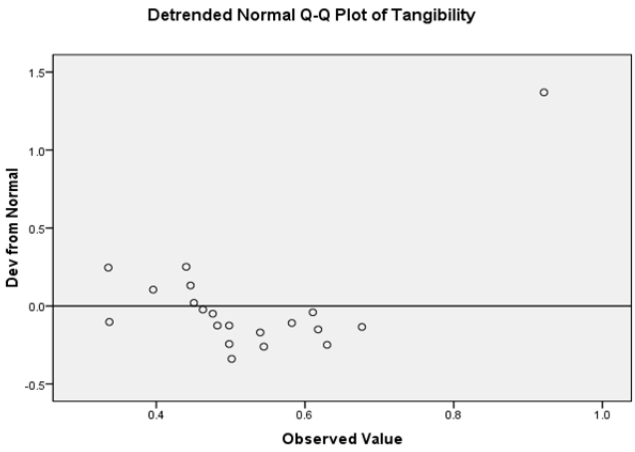


Fig. 1.2 Tangibility



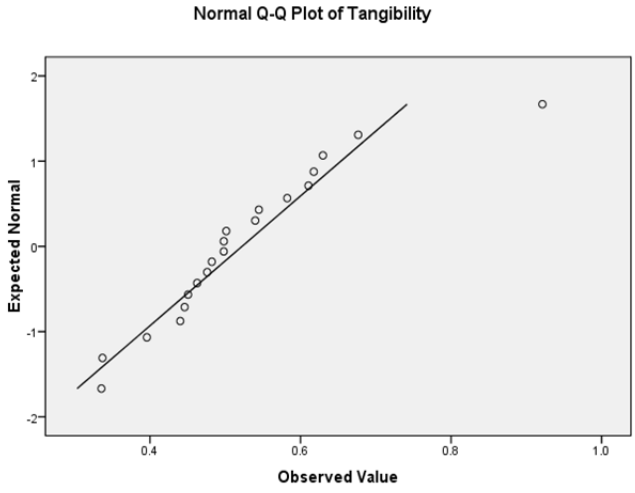
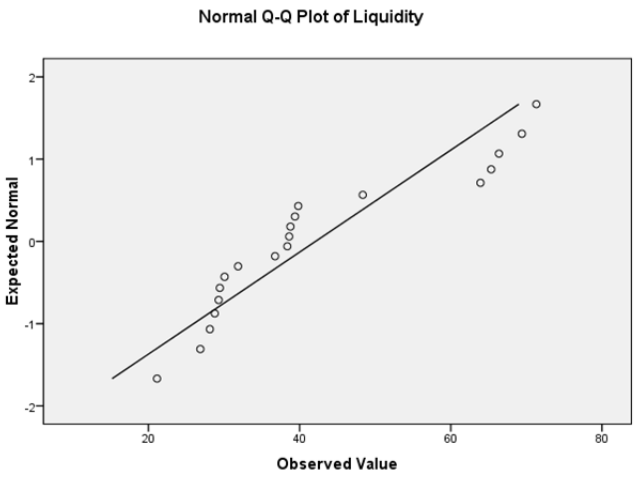


Fig. 1.3 Liquidity



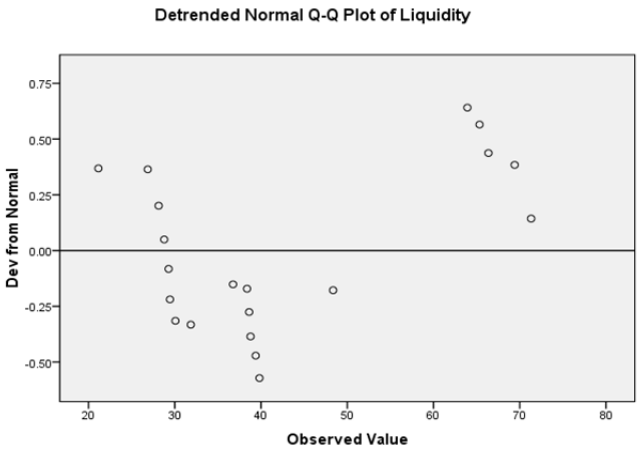


Fig. 1.4: Firm size

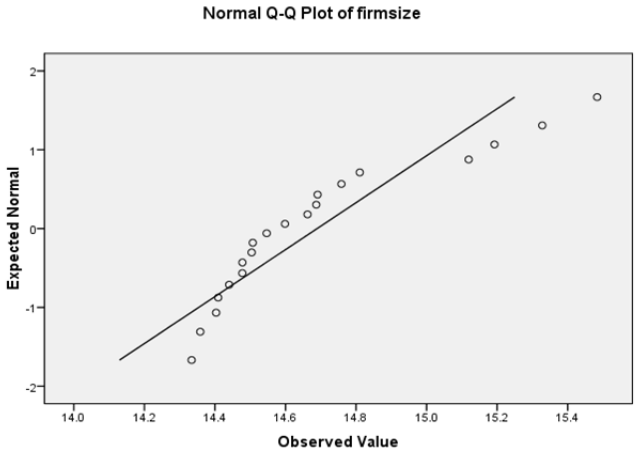
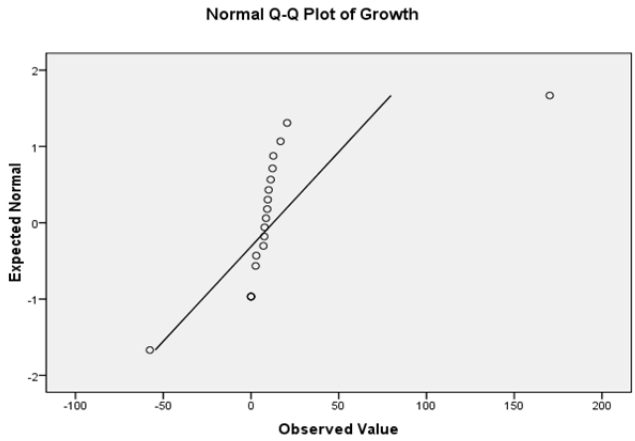


Fig. 1.5 Growth



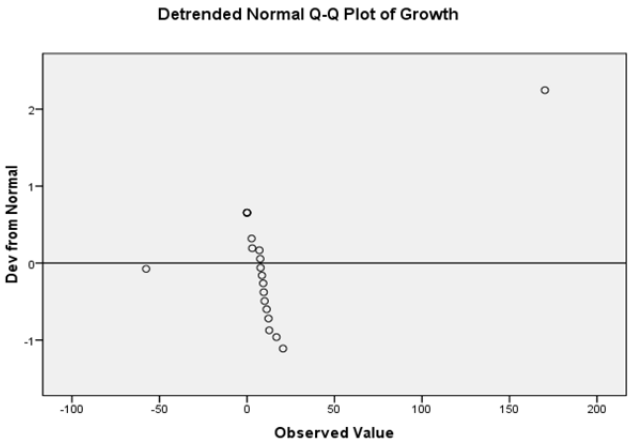
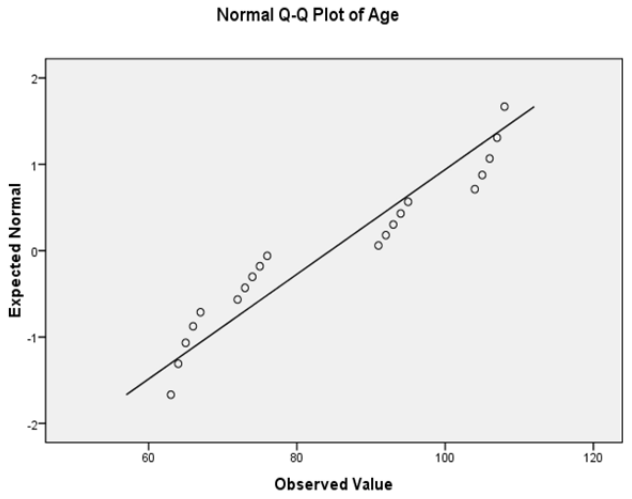
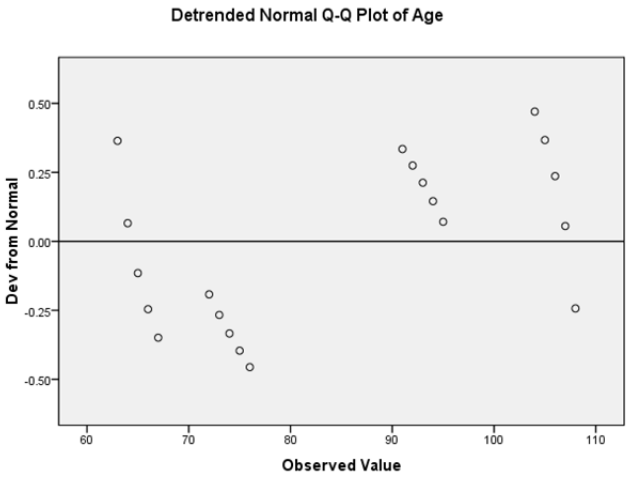


Fig. 1.6 Age





4.2 Pearson Correlation Coefficient (r) Amongst the Variables Under consideration

A group of diversified variables called SOLVENCY, LIQUDITY, TANGIBILITY, GROWTH, AGE and FIRM SIZE are taken into consideration for the purpose of present study. Before preceding further towards regression a Pearson correlation coefficient (r) are calculated to determine the relation amongst the variables under consideration. The value of r ranges between -1 to +1 signifying the positive or negative correlation amongst the variables.

Table 3: Correlation Matrix

	Solvency	Liquidity	Tangibility	Growth	Firm Size	Age
Solvency	1	.676**	-.761**	-.747**	-.767**	-.346
		.000	.000	.000	.000	.098
Liquidity		1	-.908**	-.837**	-.902**	-.740**
			.000	.000	.000	.000
Tangibility			1	.930**	.997**	.471*
				.000	.000	.020
Growth				1	.955**	.414*
					.000	.044
Firm Size					1	.459*
						.024
Age						1

The table 3 shows the value of correlation coefficient (r) for all the variables under consideration. Tangibility, growth, firm size and age have negative relationship with the solvency whereas liquidity has positive relationship with the solvency.

4.3 Regression Results

Table 4: Regression Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.923[a]	.774	.615	.729808	.274	1.056	5	14	.424
a. Predictors: (Constant), Age, Liquidity, Growth, Tangibility, firmsize									
b. Dependent Variable: Solvency									

The table 4 shows the regression results comprises of value of R, R Square, Adjusted R Square and F Statistics. The R square value is .774 which shows that 77 % variation in the

dependent variable i.e. solvency is explain by the independent variables like age, liquidity, growth, tangibility and firm size taken into consideration. Rest of the variation is due to other factors and variables which are beyond the scope of the study.

Table 5: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.813	5	.563	1.056	.024[a]
	Residual	7.457	14	.533		
	Total	10.270	19			
a. Predictors: (Constant), Age, Liquidity, Growth, Tangibility, firm size						
b. Dependent Variable: Solvency						

The table 5 shows that ANOVA results and provides that p-value of F-Statistics is .424 which shows that the null hypothesis which signifies that there is no significant relation of independent variables (tangibility, liquidity, growth, firm-size and age) with solvency is rejected as the p value is less than .05. On the other hand an alternative hypothesis which signifies significant relation of independent variables (tangibility, liquidity, growth, firm-size and age) with solvency is accepted.

Table 6: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.168	16.194		-.381	.709
	Tangibility	-.800	2.374	-.143	-.337	.741
	Liquidity	.013	.015	.283	.858	.045
	Firm size	.599	1.120	.273	.535	.013
	Growth	-.003	.005	-.140	-.475	.642
	Age	-.007	.014	-.161	-.517	.613
a. Dependent Variable: Solvency						

Table 6 shows the result on the basis of regression analysis. Solvency is taken as a dependent variable and Tangibility, Liquidity, Firm Size, Growth and age is taken as independent variable. It can be clearly observed from the table that value of intercept is negative (6.168) which indicate that if the value of all independent variable will be zero than dependent variable will be equal to intercept value. The value of Beta coefficient shows the slope or rate of change. The value of Beta found negative in case of tangibility, Growth and age whereas it is positive in case of Liquidity and Firm Size. The p value is the probability value at 95 per cent level of significance. The p value is significant for Liquidity and Firm Size as the value is less than 0.05 and in rest of the case it is insignificant. The solvency can be predicted with the following equation:-

Solvency = -6.168 + 0.13 Liquidity + 0.599 Firm Size

5. FINDINGS AND CONCLUSION

In this research study the public sector general insurance company has to be performed, the solvency position of the company is a well-balanced but some other factors are affect the performance of the Indian public sector non-life insurance company.

5.1 Major Findings of the Study

- The descriptive statistics comprise of minimum, maximum, mean and standard deviation values for the variable under consideration. In this research the mean value is lowest in case of tangibility and in case of age the mean value is highest. The amount of variation is found in case of tangibility the standard deviation is low, whereas the highest variation is found in case of growth.
- In this research study, the p-values of Kolmogorov-Smirnov and Shapiro-Wilk Test are used to test the null hypothesis that the data is normally distributed. Here in all variables after log natural and square root transformation the p-value is greater than .05 signifies the acceptance of null hypothesis in all the variables. Thereby mean that the data is normally distributed.
- The value of correlation coefficient (r) for all the variables under consideration. Tangibility, growth, firm size and age have negative relationship with the solvency whereas liquidity has positive relationship with the solvency.
- In this study the analysis of regression, the solvency position of Indian Public sector non- Life Insurance Company has been studied and it shows 77% variation due to various independent factors that are taken in to consideration, like age, liquidity, growth, tangibility, and firm size and the rest of the variation are due to the factors which are beyond to the scope of this study.
- ANOVA results provides that p-value of F-Statistics is .424 which shows that the null hypothesis which signifies that there is no significant relation of independent variables (tangibility, liquidity, growth, firm-size and age) with solvency is rejected as the p value is less than .05. On the other hand an alternative hypothesis which signifies significant relation of independent variables (tangibility, liquidity, growth, firm-size and age) with solvency is accepted.
- The result on the basis of regression analysis in which solvency is taken as a dependent variable and Tangibility, Liquidity, Firm Size, Growth and age is taken as independent variable. It can be clearly observed from the

table that value of intercept is negative (6.168) which indicate that if the value of all independent variable will be zero than dependent variable will be equal to intercept value. The value of Beta coefficient shows the slope or rate of change. The value of Beta found negative in case of tangibility, Growth and age whereas it is positive in case of Liquidity and Firm Size. The p value is the probability value at 95 per cent level of significance. The p value is significant for Liquidity and Firm Size as the value is less than 0.05 and in rest of the case it is insignificant.

6. CONCLUSION

- The fast increasing competition due LPG has provided with the growth of the fittest only and this is true with respect to insurance companies in India. The fitness of the insurance company is measured with respect to performance and performance in turn in the study is taken as solvency. So the insurance companies should continuously strive to improve its solvency.
- In case of solvency, the determinants like tangibility, liquidity, firm size, growth and age plays a vital role in the maintenance of adequate solvency margin. Accordingly, the insurance companies should take into consideration the direction of relationship (as provided by the finding of the study) between the solvency and other variables under consideration. In other words, the insurance companies should consider respective relationship while embarking any financial decision.

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