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Solvency Analysis – A Study of Public and Private Insurance Companies in India

KEYWORDS: Solvency of Insurance Companies, Private Sector, Public Sector, IRDA, Insurance Solvency International Limited (ISI) Benchmark Standard , Net Premiums, Underwriting Profits, Technical Reserve, Solvency Determinants, ASM , RSM.

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ABSTRACT *In this research paper, An Analysis of Solvency of Insurance Companies (Non-Life) in India is undertaken. For the purpose of study, 4 companies of public sector and 8 companies of private sector are considered. For analysis of solvency, Solvency Analysis as per Insurance Solvency International Limited (ISI) is undertaken. Moreover, solvency analysis as per solvency determinants is done.*

INTRODUCTION :

The activities undertaken by the IRDA have increased the insurance activities manifold in terms of volume, variety of products and geographical coverage and more. So competition due to entry of new insurers has increased service diversification to a greater extent. Insurance companies have made a shift from monopolistic environment to perfect competitive environment and a positive drive towards the introduction of excellence is risk coverage. In this context, the evaluation of solvency of insurance companies is imperative.

1. SOLVENCY ANALYSIS AS PER INSURANCE SOLVENCY INTERNATIONAL LIMITED (ISI) :

To make analysis of public and private non life insurance companies, the multilateral comparisons based on an index performance of various public and private sector companies in terms of its distance from an ideal standard prescribed by Insurance Solvency International Limited (ISI) has been attempted in the light of methodology used by Joo (2005). The "Index of performance" was developed by Insurance Solvency International Limited as a composite measure of overall insurance companies' performance. Under this analysis, six ratios are employed, viz. 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.

The solvency of various insurers has been tested by comparing following ratios with ISI benchmark ratios :

ISI Standard Ratios	Benchmark
Change in Net Premium	± 25
Underwriting Profits / Investment Income	> -25
Technical Reserves / Shareholders Funds	< 350
Technical Reserves + Shareholders Funds/ Net Premium	< 150
Pre-tax Profits / Net Premium	> 5

source: Joo Bashir A. 2005. Performance of Insurance Sector in India, The Business Review, Vol. 11 N0. 2 P 77-86.

This analysis is presented separately for public and private insurers :-

A) ISI STANDARD AND PUBLIC SECTOR INSURANCE COMPANIES :

The benchmark ISI standard, for these ratios, along with prescribed ratio for public sector insurers for a period of five years from 2004-05 to 2008-09 are presented in table 1:

TABLE 1 : ANALYSIS OF ISI STANDARD BENCHMARK OF PUBLIC SECTOR INSURERS

Companies	Years	Net Premiums / Shareholders Funds	Change in Net Premium	Underwriting Profits / Investment Income	Technical Reserves / Shareholders Funds	Technical Reserves +Shareholders Funds / Net Premium	Pre-tax Profits / Net Premium
ISI Standard		< 300	25	> -25	< 350	> 150	
New India	2004-05	90.24*	7.16*	-118.90**	96.52*	217.78*	20.48*
	2005-06	90.32*	11.49*	-148.67**	95.84*	216.83*	19.70*
	2006-07	75.33*	4.43*	-75.57**	96.68*	261.08*	35.59*
	2007-08	69.00*	6.09*	-85.19**	97.13*	285.69*	31.62*
	2008-09	71.69*	9.10*	-192.97**	97.27*	275.17*	5.66*
Oriental	2004-05	156.35*	9.10*	-236.54**	92.95*	123.41**	21.27*
	2005-06	151.96*	12.73*	-225.71**	93.92*	127.62**	13.37*
	2006-07	132.83*	7.61*	-160.18**	95.06*	146.86**	23.40*
	2007-08	141.94*	6.89*	-198.94**	95.06*	137.42**	15.38*
	2008-09	155.39*	6.63*	-392.85**	94.93*	125.45**	-2.88**

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National	2004-05	232.86*	12.90*	-352.92**	91.78*	82.36**	4.99**
	2005-06	241.71*	-5.27*	-484.48**	90.99*	79.02**	-2.22**
	2006-07	193.07*	3.15*	-272.58**	93.02*	99.98**	16.47*
	2007-08	193.66*	9.07*	-339.37**	93.58*	99.96**	5.70*
	2008-09	242.81*	13.38*	-475.77**	92.91*	79.45**	-3.90**
United	2004-05	107.05*	0.99*	-246.00**	95.07*	182.23*	14.65*
	2005-06	94.42*	2.45*	-212.61**	95.76*	207.33*	20.34*
	2006-07	87.51*	6.62*	-170.78**	96.31*	224.32*	21.93*
	2007-08	84.69*	13.86*	-154.85**	96.87*	232.46*	24.36*
	2008-09	89.77*	18.39*	-134.98**	97.19*	219.66*	15.72*

Source: Compiled and computed from the annual reports various public sector insurance companies (2004-05 to 2008-09)

* Meets ISI standard
** Does not meet ISI standard

It is evident from the analysis of Net Premium to Shareholders Funds Ratio, the ratio is within the benchmark ISI standard of less than 300 for all public sector insurers for the period of study and as such they are able to meet this standard during the period of study. The ratio of change in net premium for all public sector insurance companies is within the benchmark of ±25 for all years of study period. Similarly, all public sector insurers are able of meet the ISI standard of less than 350 over the study period in the respect Technical Reserves to Shareholders Funds. However, it is surprising to note that benchmark of less than -25 for Underwriting Profits to Investment Ratio in case of public sector insurers is more than the set standard for all years of study period and as such public sector insurers were not able to meet ISI standard in this respect. Further, it is evident from the analysis of Technical Reserves plus Shareholders Funds to Net Premiums, that only New India and United insurers are able to meet ISI standard of less than 150 for all years of study period. While Oriental and National insurers have failed to meet the ISI standard for all years of study period in respect of Technical Reserves plus Shareholders Funds to Net Premiums. It is also clear from the analysis of Pre-tax Profits to Net Premiums that all public sector companies are able to meet benchmark standard of greater than 5 in this respect except for Oriental during 2008-09 (2.88) and National for years 2004-05 (4.99) 2005-06 (-2.22) and 2008-09 (3.90).

B) ISI STANDARD AND PRIVATE SECTOR INSURANCE COMPANIES :

The analysis of ISI standard benchmark analysis ratio for private sector insurance companies are presented in table 2.

TABLE 2: ANALYSIS OF ISI STANDARD BENCHMARK OF PRIVATE SECTOR INSURERS

Companies	years	Net Premiums/ Shareholders Funds	Change in Net Premium	Underwriting Profits / Investment Income	Technical Reserves / Shareholders Funds	Technical Reserves + Shareholders Funds / Net Premium	Pre-tax Profits / Net Premium
ISI Standard		< 300	25	> -25	< 350	> 150	
ROYAL SUNDARAM	2004-05	155.09*	28.99**	-154.17**	-	64.48**	2.65**
	2005-06	212.06*	47.25**	-154.30**	-	47.16**	3.42**
	2006-07	234.19*	12.36*	-56.32**	1.71*	43.43**	8.15*
	2007-08	251.66*	33.65**	-328.74**	4.04*	41.34**	1.07**
	2008-09	268.40*	34.15**	-345.26**	5.75*	39.40**	1.63**
BAJAJ ALLIANZ	2004-05	268.34*	67.34**	361.42*	38.51*	51.62**	16.06*
	2005-06	261.61*	45.78**	206.94*	58.79*	60.70**	11.71*
	2006-07	207.86*	20.01*	69.25*	72.70*	83.08**	13.96*
	2007-08	245.18*	68.80**	-67.56**	80.91*	73.79**	11.86*
	2008-09	281.24*	33.62**	-171.25**	83.61*	65.28**	7.92*
TATA AIG	2004-05	207.82*	37.71**	22.94*	-	48.12**	9.39*
	2005-06	172.70*	29.64**	-4.44*	-	57.90**	7.98*
	2006-07	156.54*	13.33*	-42.11**	7.71*	68.81**	8.66*
	2007-08	174.57*	18.92*	-128.10**	13.45*	64.99**	5.93*
	2008-09	173.19*	29.44**	-251.70**	11.56*	64.41**	1.62**
RELIANCE	2004-05	44.77*	79.33**	-54.89**	26.30*	282.14*	11.64*
	2005-06	36.35*	-10.36*	58.18*	33.24*	366.49*	37.94*
	2006-07	94.16*	339.79**	-204.34**	60.27*	170.20*	0.92**
	2007-08	158.16*	293.04**	-752.05**	82.35*	115.29**	-16.96**
	2008-09	174.25*	44.67**	-402.73**	85.81*	106.64**	-3.61**

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IFFCO TOKIO	2004-05	187.33*	76.06**	49.14*	20.20*	64.17**	10.07*
	2005-06	170.88*	103.74**	-78.51**	21.40*	71.04**	5.04*
	2006-07	184.54*	14.49*	-63.61**	25.86*	68.20**	7.75*
	2007-08	210.48*	16.81*	-282.84**	27.61*	60.63**	1.85**
	2008-09	182.02*	30.21**	-499.44**	46.02*	80.23**	0.83**
ICICI LOMBARD	2004-05	128.66*	147.18**	9.78*	11.79*	86.89**	16.79*
	2005-06	196.79*	128.70**	-92.59**	34.30*	68.25**	7.43*
	2006-07	134.56*	45.35**	-96.38**	57.65*	117.16**	7.51*
	2007-08	145.65*	46.93**	-97.38**	64.93*	113.23**	8.31*
	2008-09	123.15*	25.94**	-235.63**	74.85*	141.98**	0.01**
CHOLA MANDALAM	2004-05	63.02*	85.12**	-221.90**	-	158.67*	-3.73**
	2005-06	69.42*	10.15*	-263.74**	-	144.05**	-2.54**
	2006-07	89.66*	29.15**	-29.14**	-	111.53**	10.84*
	2007-08	170.49*	95.52**	-202.23**	2.75*	60.27**	4.24**
	2008-09	251.94*	54.85**	-258.18**	7.19*	42.55**	3.08**
HDFC	2004-05	112.28*	51.40**	-290.81**	-	89.06**	-5.95**
	2005-06	115.17*	7.01*	-111.99**	-	86.83**	3.34**
	2006-07	112.31*	-2.35*	-124.98**	-	89.04**	1.78**
	2007-08	100.03*	6.96*	-540.05**	-	99.97**	-11.18**
	2008-09	89.74*	19.61*	-550.10**	-	111.44**	-14.05**

Source: Compiled and computed from the annual reports various public sector insurance companies from 2004-05 to 2008-09.

* Meets ISI standard ** Does not meet ISI standard

The analysis of Net Premiums to Shareholders Funds reveals that all private sector insurers during the period of study are able to meet ISI standard of less than 300. The ratio of Change in Net Premium for all private sector insurers presents fluctuating picture as almost in all years of study period, the companies are not able to meet the benchmark standard of ± 25, except for few years when they are able to meet to this standard. Similar picture was witnessed for all companies in the private sector over the period of study in respect of Underwriting Profits to Investment Ratio, where companies are far away from set standard of less than -25. However, it is evident from the analysis of Technical Reserves to Shareholders Funds that private sector insurers have been able to meet the benchmark standard of less than 350 for all years of the reference period. The ratio of Technical Reserves plus Shareholders Funds to Net Premium computed in respect of private sector insurers for the study period, shows that all private companies are able to meet the ISI standard of less than 150 in this respect, except in case of Reliance for 2004-05 (282.14), 2005-06 (366.49), 2006-07 (170.20) and Cholamandalam for 2004-05 (158.67). The last ratio in the category of ISI standard index is Pre-tax Profits / Net Premiums. This ratio depicts mixed picture as all companies in private sector have been able to meet the standard of less than 5 for few years of study period and have failed to meet the standard for remaining years. Moreover, the ratio for the HDFC could not be computed, due to non availability of technical reserves.

The analysis reveals that public sector insurers are generally better placed in terms of the ISI standard, however, what is seemed to be worrisome is that the standard of Underwriting Profitability to Investment Income, which has never been met by the public sector insurers. Moreover the absolute value of the standard reflects that underwriting losses damages overall profitability position of the public insurers and the trend seems to be on surge. The analysis of private sector insurers on the other hand reveals heavy fluctuation in net premium and they are not able to meet the benchmark standard. Analysis also reveals that underwriting profitability too has been under strain as such the sector does not meet the prescribed standard by ISI and consequently Pre-tax Profits / Net Premium is also affected, which lead to the sectoral inability of meeting the ISI standard.

2. SOLVENCY ANALYSIS AS PER SOLVENCY DETERMINANTS :

The IRDA has issued a strict guideline towards maintenance of a 'Statutory Solvency Reserve'. Solvency margins for each class or line of business are clearly specified by IRDA (Assets, Liabilities, and Solvency Margin of Insurers) Regulations, 2000. These regulatory guidelines are helpful in finding out the 'Solvency Ratio' [the ratio of the total amount of Available Solvency Margin (ASM) to the total amount of Required Solvency Margin (RSM)] at the firm level. The determination of "Required Solvency Margin" (RSM) differs from life segment to non-life segment of insurance business. Again, depending on the line of business the practice of required solvency margin varies among different non life insurers. In addition to this, Required Solvency Margin of non life insurers is based on either Net Premiums (RSM-NP) or on Net Incurred Claims (RSM-IC) and ultimately the required solvency margin shall be the higher of the amounts of RSM-NP and RSM-IC. The last and final step towards calculation of the solvency ratio is to estimate the total "Available Solvency Margin" (ASM). The calculation of both ASM and RSM also depends on the IRDA (Actuarial Report and Abstract) Regulations, 2000 and it requires specific information relating to the insurance business. These specific business information are neither available from Annual Report, nor does IRDA make public its Actuarial Report and Abstract.

However, in present study ASM has been calculated with the help of financial information available. In this context, an analysis of solvency ratio has been attempt by using regression analysis by taking the solvency ratio as dependent variable and various factors as identified in various research studies as independent variables.

In present study the eight predictors of solvency have been tested with the help of multiple regression analysis in order to analyse on the solvency margin of insurance companies. Available Solvency Margin (ASM) has been used as dependent variable for the 12 non-life insurers in the industry for the period 2004-05 to 2008-09 to prove the expected impact

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given above. Multiple regression model has been employed to include various independent variables and their impact on solvency margin has been tested by using following equation.

Solvency(Y) = a0 + a1(Market Share) + a2(Operating Margin) + a3(Firms Size) + a4(Investment Yield) + a5(Liquidity) + a6(Combined Ratio) + a7(Claim Ratio) + a8(Underwriting Performance) + ∈

Dependent Variable = Available Solvency Ratio

The independent variables and their description used for multiple regression analysis in presented here under Table 3.

TABLE 3: INDEPENDENT VARIABLES

Independent Variables	Description
Firm Size	Total Assets to Earned Premiums
Investment Performance	Investment Income to Earned Premiums
Liquidity Ratio	Liquid Assets to Current Liabilities
Operating Margin	Total Income to Total Outgoing
Combined Ratio	Sum of Loss Ratio and Expense Ratio (Financial Basis)
Claims Ratio	Net Claims Incurred to Premiums Earned
Market Share	Share in Total gross premium of the sector
Underwriting Profitability	Profits from Operations, Excluding investment and Other Income

The multiple regression analysis for solvency margin of non life insurance industry is as under :

TABLE 4 : RESULTS OF MULTIPLE REGRESSION ANALYSIS FOR SOLVENCY MARGIN OF NON LIFE INSURANCE INDUSTRY

Model	Coefficients Beta	Std. Error	T	P
Y-Intercept	3.6321	0.6918	5.25025	<0.0001
Market Share	0.02643	0.02045	1.29249	0.20201
Operating Margin	-0.0377*	0.01288	-2.92582	<0.0051
Firm Size	0.00711*	0.00115	6.18232	<0.0001
Investment Income	-0.01189	0.01641	-0.72417	0.47227
Liquidity	0.00547	0.00519	1.05453	0.29661
Combined ratio	0.00563*	0.00241	2.3403	<0.0232
Claims Ratio	-0.06466*	0.01461	-4.42486	<0.0001
Underwriting Performance	7.84811E-8	4.21582E-6	0.01862	0.98522
R Square		0.61658		
Adjusted R Square		0.55643		
Observations 60				

* at 5 percent level of significance

Based on the results depicted in table 4 above, against expectation, the non-life insurers' solvency is affected by the Firm size. Several factors may be responsible but the most obvious one seems to be the nature of business done by the non-life insurers. The policyholders' liabilities are borne by the insurer for a year and hence the fund created will be for a particular financial year. Unlike life insurers, the non-life insurers have no net accretion to the total investible funds each year. A typical non-life insurance policy (say health, motor vehicle, etc.) expires exactly after a year from the date of purchase / commencement.

One of the predictors - claims ratio, suggest that it has the expected sign and strongly suggests that higher claim ratio has been contributing negatively to overall insurer solvency status. Size of firms, which is again significant, is also going to contribute to higher income and hence contribute towards solvency. But, the two predictors - operating margin and underwriting result, proxies by the combined ratio were significant but yielded unexpected relationship with solvency. These results may be due to the fact that most of the firms are still trying to establish themselves in the industry and initially spending more compared to total assets, income and underwriting profits.

The analysis of solvency margins highlights the upper hand of public insurers over the private insurers as per ISI standard, the status if monitored closely reflects that the sector reflects comparatively good financial strength. However, since the study is not aimed at comparative analysis of the two sectors, the analysis reveals that IRDA in general and individual companies in particular need to redesign their underwriting policy, which should be aimed at competitive and profitable business. The practice of subsidizing of investment income to meet underwriting losses, which is in practice in full force should be redesigned to exclude investment side from corporate functioning. The benchmark be made, reflecting only operational performance, which in the long run should aim at profitable underwriting of the insurance companies. It seems each player in the market is contended or they are together improving their financial ratios and hence there is no significant shift observed to strengthen the hypothesis. However, as ratios are important for future sustainability, firm size was observed most significant variable, having impact on solvency margin. Indian insurance industry is growing and the first job assigned to IRDA is to regulate and protect policyholder's interest and then help the development and growth of the industry. Till 1999, most of the reserves of the public insurers were in the form of Central Government and State Government bonds and securities. Most of their assets were secured and guaranteed by the Government. After liberalisation also more than 75 % of such investments in securities and bonds were with the Government. If short run solvency is heavily dependent on the size of the insurers and the growing loss ratio, it is time for the insurers to re-think and devise the underwriting policy to embrace the risks associated and price the products accordingly with stressing profitable pricing. Any relaxation on this ground might prove to be costly and in the future sustainability may get affected to a great extent. The significance of these variables may help the regulator to decide whether or not to give insurers enough freedom to invest in the stock markets and other investment channels with attractive rates of return.

CONCLUSION:

From the statistical analysis of the 12 non life insurance companies it can be concluded that they have performed successfully in the grabbing the market in deregulated environment. The required solvency norms have been adhered to, however, growing underwriting losses and unsound product pricing may not be a sustainable strategy in a long run to acquire market share. The higher claims ratio, which is seen to have negative impact on the solvency, could threat the solvent state of the insurers. Therefore, proper product pricing and sound risk management practices, re-regulation of prices and sound reinsurance policy are needed.

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