

## STRESS TESTING

# OPTIMAL USE OF STRESS TESTING IN THE INDIAN INSURANCE INDUSTRY

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In the last few years risk management is mantra in every segment of financial sector. Stress testing assumes an integral part in risk management and its importance is to be recognized duly and this tool has to be used very carefully by the industry.

When we want to measure how much risk appetite an insuree has then, in general we ask three questions viz., (1) how much exposure – asset class wise (2) how sensitive is the value to a unit change in an underlying value of the asset (3) how big could the changes in variable (2) ?

Sophisticated risk management takes care of first two questions because they are factual and reasonably objective but the third question depend on judgment and one's capacity to focus. When we undertake to answer question No.3 we usually use historical data but ultimately we use judgment in answering the third question. History has proved that the judgment went wrong on many occasions, especially in extreme situations. This is where the ST is valuable. ST pin points the key assumptions and quantifies the risk faced by the insurers when the forecast go really wrong.

Ever since 1987 stock market crash and up to the latest sub-prime crisis, each crisis shows that it is dangerous to base one's risk management process on normal or likely market moves. Effective risk management must minimize surprises and shocks. ST assumes more importance in view of the following:

- In a distressed condition different markets become linked quickly and normal correlations cease to hold. Due to the speed of information and investor drives financial flows markets do not stay compartmentalized. Hence correlation assumptions based on history breaks down and the correlation tend to swing to extreme.
- Market price become discontinuance as information spreads quickly and market participants rush to act. Under such circumstance hedging assumptions break down and orderly execution becomes difficult.
- Under normal circumstances one can balance the hazards of concentration against the competitive benefits of scale. But market shocks can turn a concentration into a near fatal loss. Distress market condition can create new surprising and near fatal concentrations through unexpected sudden linkages. It is interesting to note that each market crisis reveals surprisingly new sources of concentration.
- In extreme conditions the liquidity dry in market and markets can become ill-liquid. Institutions have generally become vulnerable to liquidity shocks.
- Credit worthiness is the fundamental assumption on which many portfolios are built up which also depends on credit spread or favorable macro economic conditions. Hence shocks in macro economic lead to crisis of confidence and shocks to currency, interest rate, capital force etc., could cause significant spectacular losses.
  - Experience clearly shows that hedging or rebalancing position is almost impossible in a turbulent market and hence key

assumptions built into pricing models cease to exist. Hence, large unexpected losses occurred.

These facts clearly indicate that the usual risk management tools are not effective in extreme conditions. We have to rely on ST in order to guard us against the unfavorable conditions. Experience clearly shows that insurers who use ST in an objective manner have protected the interests of the policyholders very well as compared to others. Hence ST is imperative. It is important due to the following reasons also:

- The traditional risks measures are based on historical assumptions inter-alia include normal distribution of volatilities and correlations, continuance prices and adequate liquidity. All these work very under normal market conditions, but they fail in extreme market moves. For example, value at risk calculations for market risk is typically based on three standard deviations. Usually, they are based on limited historical data of usually not more than three years. We have also seen that market shock for exceeding 3 standard deviation is not uncommon. Hence, the fact that such measures are used to make it imperative that ST is a routine supplementary process. ST clearly tells us that VAR is not a guarantee of the worst case loss.
- VAR and risk capital models usually provide a cushion against losses caused by large range of market moves but, will no doubt fail under extreme market conditions. Hence, ST is needed to identify the vulnerable and to provide contingencies when capital is insufficient protection.
- Risk capital serves as a last line of defense. But, ST together with day today risk management provides pro-active and dynamic management of risk. It is important to recognize that no risk management can prevent losses but the best can minimize the shocks. ST is a powerful means of anticipating, understanding and preparing for shocks and the resulting potential losses.
- Usually, insurers are biased towards likely events. They identify client needs and determine market prices based on expected market moves but, ST focuses on what can go wrong, the highly unlikely but, severe event. Hence, the insurer can maximize the business opportunity while reducing the likelihood of financial distress.
- In general, regulators, rating agencies and investors worry about catastrophe losses and restrict the ability of insurers to do business in distressed market condition. Their understanding of what effective risk management requires is increasingly sophisticated. Liquidity risk, systemic risk and ultimately solvency are top of mind.
- Stress testing clearly says that VAR is not a guarantee of the worst case loss.

### Steps to be adopted in Stress Testing:

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**Steps to be adopted in Stress Testing:**

- ST usually starts with historical events and update with current conditions
- Institutional portfolios must be taken into account while doing ST. This usually includes vulnerabilities and worst case loss events specific to the insurer.
- Extreme standard deviation scenarios and incremental extreme market moves and tail risk.
- Based on observable historical market events, quantify the impact of a series of tail events to evaluate the severity of the worst case losses. This approach also evaluates the distribution of tail events to determine if there are patterns that should be used for scenario analysis.

We have to recognize that the stress testing is equally important for non-life industry as that of life industry. The following are some of the examples for stress testing exercise:

- If the marketing expenses / operating expenses increases by x %, what would be the effect on total expenses and hence on required solvency capital?

- If the mortality rate of median age group of policyholders increases by k %, what would be the effect on total claims and hence on required solvency capital?
- If the yield on the portfolio decreases by y %, what would be the effect on total income, gap generated in the guaranteed rates and hence on required solvency capital?
- If the lapse rate increases by z %, what would be the effect on loss on total expenses to be recovered and hence on required solvency capital?
- If the share of reinsurance portfolio increases by l %, what would be effect on income position and hence on the total profitability of the portfolio, for a given return on equity?

It is important that the results of stress testing exercise would be shared and discussed with the Chief Risk Officer, CEO and even at the Board level. This will give an excellent opportunity for the Directors to understand the risks they have and could enable them to work out suitable risk management strategy. In its review meeting, this would enable them to review the strategy itself and address the question whether there is a need to revisit the strategy.

*FROM THE FINANCIAL PAPER "ECONOMIC TIMES"*

**INSURERS MAY HAVE TO MAKE FINANCIALS PUBLIC  
IRDA MOVE TO HELP INVESTORS ASSESS COS'  
STRENGTH PRIOR TO IPOs**

**Hema Ramakrishnan**

Insurance regulator IRDA will make it mandatory for all insurers to disclose their financial statements to the public, even if they are not planning to get listed on stock exchanges.

"We have sent a proposal to the government, as we reckon that insurers should make public disclosures; irrespective of whether or not they plan to launch initial public offerings. Disclosures will apply to both public and private insurers," IRDA chairman J Hari Narayan told ET.

The proposed move will bring in transparency and enable policy-holders to gauge the financial strength of insurance firms. It will also help potential investors assess the strength of a company that plans to launch an initial public offering (IPO).

Currently, insurers furnish quarterly statements to IRDA, but this is not in public domain. Most life insurance companies are yet to start making profits - a fact that many policy holders may not be aware of in the absence of financial statements.

Holding companies of insurance firms that are listed on the stock exchange, however, make certain disclosures on their subsidiaries, based on the norms stipulated by market regulator Sebi.

If the government accepts the insurance regulator's proposal, the country's largest state-owned insurer Life Insurance Corporation and other private insurers will have to make public disclosures of their quarterly statements, among other things.

"Furnishing a balance sheet and a profit and loss account should not pose a problem and is a good start. IRDA will have to specify the norms for disclosure including the format and so on," said a chief financial officer of a private insurance firm, who wished not to be named.

The existing disclosures of insurers to the regulator also include providing information on investment portfolios at regular intervals, besides financial and operating ratios such as incurred claim, commission and expense ratios.

Companies also need to disclose their actual solvency margin (ability to repay claims), policy-lapse ratio, current financial position and their risk management architecture to IRDA, besides all related party transactions.

Policy lapse ratio refers to the percentage of the life insurance company's policies in force at the beginning of the year that are no longer in force at the end of the year. This ratio is critical, as it indicates the rate at which policies are going off the books and the resultant loss of earnings to the company.

The existing insurance law allows only companies that have completed 10 years of operations to launch an IPO. Companies planning to launch initial public offerings (IPO) to raise capital will have to make additional disclosures including their valuation, product offerings and their distribution channels.

There are 42 insurance firms operating in India, with total assets under management (AUM) of over Rs 9 lakh crore.