

Quantile Based VaR (Value at Risk) to Appraise an Insurance/Reinsurance Business's ERM-Economic Risk Capital

Chitro Majumdar*

Abstract

An urbane econometric theory has been concerned with devising robust and analytically sound techniques for assessing the risk of an asset portfolio. The works of some of the greats of the profession have been used to develop a number of risk measures for quantifying different categories of risks. For an example, volatility measures the uncertainty of returns, beta measures how much an individual asset is likely to move with the general market and Value at Risk, which is a recent innovation, measures the maximum loss (in the probabilistic sense) that is likely to be occurred in the immediate future. Ironically, almost all risk measures developed yet are applicable to a symmetric loss distribution. VaR is not an exception to that tendency. Unfortunately, in the real world, skewness of the loss distribution is not an uncommon feature. Especially for an emerging market (also for developed market), where equity prices are observed to remain in the high volatile state for a reasonably longer time period, the loss distribution is expected to have a skewed nature. In such a situation, a VaR based approach would naturally provide an exuberant / or conservative measure for the economic risk capital of an insurance/reinsurance business. The firms disperse the risk-capital tradeoff, so that the whole organization makes decisions optimizing the tradeoff. And there will be an issue while measuring the operational risk from ERM (Enterprise Risk Management) perspective. It is important for firms to look beyond the VaR measure for an insurance company's asset portfolio allocations which could estimate at the probability level corresponding to a default threshold. Then the ERM creates value by optimizing (to measures of tail risk either) the present value of financial distress costs. Moreover we will compare our results with the application of DFA portfolio risk management and modelling, economic capital estimation and allocation, evaluation of ceded reinsurance and other management strategies, cash flow analysis, financial statement modelling and projections.

We have introduced an alternative to VaR, advantages of which are akin to the conventional VaR model. However, the new measure would not be viable to the serious limitation of the VaR model.

Key words: VaR, ERM Modelling, DFA (Dynamic Financial Analysis)

* **Chitro Majumdar:** Practice leader -Credit derivative, DFA modelling, Oracle Financial Services, Level 25, 40 Bank Street, Canary Wharf, London E14 5NR; chitro.majumdar@iflexsolutions.com, chitromajumdar@gmail.com, Phone: +44 207 531 4400