What banks should do to maintain economic capital

Published: December 10, 2018 4:14 AM

The more secure a bank wants to be, the higher will be the capital required to be maintained by it. But capital has a cost attached to it

The economic capital of a bank is defined as the amount of capital required to be maintained in order to withstand losses to the bank at a predefined level of a worst-case scenario.

By Hemant Manuj

The last meeting of the management and board members of the Reserve Bank of India (RBI) with the finance minister and senior officials of the ministry of finance ended with a decision to constitute a few committees to examine some of the contentious issues.

These issues are of technical nature, and would require specialists in the fields of banking and financial markets to examine them. Let us understand some of the technical aspects underlying the issues to be addressed. Here, we are looking at the following: ‘

– What should be the appropriate level of capital maintained by RBI?
– What should be the minimum level of capital to be maintained by Indian banks?
– Should the process for putting banks under prompt corrective action (PCA) be relaxed?

We look at the first two issues in detail.
The basic principles for arriving at an appropriate level of capital are the same for all banks, including RBI. So, how is the economic capital modelled for a bank?

The economic capital of a bank is defined as the amount of capital required to be maintained in order to withstand losses to the bank at a predefined level of a worst-case scenario. There are several elements that go into the computation of the economic capital. The most challenging aspect is the estimation of the potential loss in a worst-case scenario.

Since we are talking of potential scenarios that may occur in the future, it is impossible to predict them accurately. These losses can be expected with varying levels of probability in the future. Let us consider an example, where a rise in crude oil price can cause a loss to a bank.

Now, visualise a situation where a bank is concerned only about the impact of oil prices on its profits. In order to estimate the risk from oil prices, consider some potential pessimistic scenarios. It is possible that, over the next one year, the Brent crude oil price may go up to $80 or $100 or even $150, as has been seen in the past. Taking this further, in a certain scenario, there is also a small (but non-zero) probability of the oil price moving up to $300! At each level of these high oil prices, a bank with an exposure to oil price risk would suffer a certain amount of loss. If a bank wishes to survive through such loss, it would require a certain level of capital. So, how much capital should a bank maintain?

The decision process for a bank would depend on two key points:
(a) Up to what level does it expect the oil price to move up, and with what level of probability?

(b) Each level of oil price would translate to a given level of loss for the bank. Up to what level of oil price, or equivalently, and up to what level of loss, would the bank like, to be protected from insolvency?

For example, a bank may estimate that the probabilities of oil price exceeding $100, $150 and $300 are 20%, 10% and 0.1%, respectively. This means that if the bank maintains adequate capital to absorb the losses from oil price rise up to $100, there is still a 20% chance that the bank may face insolvency. So, a bank can choose to limit the probability of its own default to 20%, 10% or 0.1% by maintaining the required amount of capital for absorbing losses at the respective levels of oil prices.

The more secure a bank wants to be, the higher will be the capital required to be maintained by it. But capital has a cost attached to it. A bank needs to judiciously choose what level of solvency it wants and the related capital it is ready to maintain.

Challenges: There have been various econometric techniques used by banks to estimate the potential losses based on future events. However, no bank can say that its technique is perfect. These techniques keep getting revised as banks learn from their experiences.

To add to this, there are multiple risk factors that a bank has to deal with at any point in time. So, the degree of complexity and uncertainty on the prediction of future outcomes also multiplies several-fold.

A prediction outcome is as only good as the data, the model structure, and the underlying assumptions used for the same. The data used is based mostly on either historical observations or derived from related market observations. The econometric models that are used to forecast the future trends of the risk factors are often subject to errors. Finally, assumptions underlying the model are just that. So, predictions are fraught with errors.

In order to deal with prediction errors, banks often maintain an additional buffer of capital over and above the minimum economic capital as per the

model. This is the reason regulators also insist on a margin of safety in the level of capital maintained by banks.

Summary: Here we have talked, at a very high level, the challenges in estimating the appropriate level of economic capital for a bank or a central bank. Each step in the process of modelling of the economic capital needs to be examined deeply. This requires technical expertise, experience and humility. Let us hope we do get all of these.

-The writer is Associate Professor and Area Head, Finance, SPJIMR, Mumbai