

Hammers and nails

Excess regard for the techniques we know can lead to these methods being misapplied. Risk managers too often fall into this trap, argues David Rowe

It is often said that if your only tool is a

hammer, every problem looks like a nail. We are all captive to our history and training in ways that constrain our thinking and our approach to problems we face. Techniques and skills we have mastered are both psychologically comfortable and appealing when confronting a new challenge.

Unfortunately, these techniques are never appropriate for all situations and applying them inappropriately can be both misleading and dangerous. I fear financial risk managers too easily fall into this trap.

A great deal has been written about the pros and cons of value-at-risk, especially in the midst of the economic events of the past three years. I believe many of these comments reflect a fundamental misunderstanding of the nature and limitations of this technique. Nevertheless, risk managers must bear some blame for this failure to appreciate these limitations. I have often said VAR should never be referred to as a 'worst-case loss'. Practitioners understand the limitations of this sloppy shorthand usage but often fail to realise that general audiences do not. Beyond this, however, I think we compound the problem when, either inadvertently or under duress, we apply the technique inappropriately.

At its most fundamental level, VAR estimation involves deriving a probability distribution for potential outcomes. As a means of summarising the behaviour of routine daily fluctuations, this is a sensible technique. It was the first tool that provided a coherent means of communication between the trading world and general management. It provided a conceptually consistent measure that could be applied across very different trading areas, allowing both comparison and aggregation (with due regard for the degree of co-variability among market factors).

Unfortunately, the success of VAR as a measurement tool led to its application in areas where its relevance was at least questionable and at worst highly misleading. When I worked at a bank, I recall being asked for a VAR estimate for a US dollar versus Argentine peso carry trade. At the time, the exchange rate was pegged at one-to-one and

the question was whether the peg would be broken (or perhaps more appropriately when it would be broken). I am pleased to say my response was to refuse the request, since such an estimate would be groundless and misleading. The exposure was to a sudden devaluation driven largely by a political decision. A VAR estimate in this context would have misrepresented the situation.

The previous example illustrates another problem with VAR. Sometimes, extreme quantitative differences amount to qualitative differences. VAR makes sense when there are frequently observed changes characterised by distributions that are reasonably stable and have acceptably thin tails. Even if the probability of a peso devaluation could have been known with certainty, a 99th-percentile loss estimate for any given day would have been zero if the probability of a break in the peg was less than the 1% threshold.

A quantitatively less extreme but substantively more dangerous situation was the use of VAR to estimate the risk of a large book of credit default swaps. Such a loss distribution is driven by movements in credit quality of the underlying names that tend to be small on a daily basis. More importantly, such movements behave very differently in the upper or middle part of the credit rating scale than they do when a company encounters serious problems. Near the bottom of the scale, the 1% potential loss balloons in magnitude. Furthermore, a general economic downturn has a broadly negative impact on a wide range of companies, destroying the apparent diversification that characterises more benign periods. This evaporation of diversification was especially pertinent to credit default swaps written on subprime collateralised debt obligations, since the fate of all such instruments was tied to the performance of US housing prices.

The power of VAR to homogenise and aggregate risk estimates exploited another psychological weakness, namely the desire for a single comprehensive risk estimate. Many risk managers have experienced the frustration of senior management's impatience with complexity and nuance. "Spare me the two-handed economist routine, just tell me the risk!" is an all too common refrain. The complexity of the world is never so easily captured by any single metric, no matter how apparently sophisticated. Unless senior managers are prepared to spend the time needed to weigh the multi-dimensional nature of risk, and treat risk estimates as suggestive rather than conclusive, the risk management efforts at their institutions will be largely for naught when a crisis strikes. ■

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