

Risk information – balancing priorities

Reliable generation and timely distribution of relevant information is essential for effective risk management. David Rowe argues that a senior executive with working knowledge of all aspects of the problem and authority to make the necessary compromises among competing priorities is essential for success

My professional involvement with the use of computers for social scientific and financial analysis began over 30 years ago in the mainframe era. Needless to say, in the intervening years I have witnessed a revolution of breathtaking proportions. A case in point is that the portable notebook PC I use to write this column has 80 times the memory of the dual processor IBM mainframe my colleagues and I used to prepare econometric forecasts in the early 1970s. Despite this explosion in computing capacity, however, I have always found that “computers are never fast enough”. Occasionally, a new generation of computers may provide a temporary surplus of speed and capacity. Soon, however, new and more demanding applications consume the slack and leave us feeling capacity constrained. I call this Parkinson’s Law of Computing: “The magnitude of desired computing tasks expands to fill the capacity available.”

Asymmetric computing demands

In many ways, the development and associated risk management of derivatives over the past 20 years is a classic example of this dynamic in action. The dramatic explosion in computing capacity was essential to the development of complex derivatives markets while also providing the foundation for measuring and managing their risks. One unavoidable reality, however, is that generating risk management information is more intensely affected by Parkinson’s Law of Computing than is pricing and hedging.

The basis for this is simple. Pricing and hedging calculations are based on current market conditions. Risk calculations generally require examining the implications of a large number of potential future market scenarios. This problem is compounded by path-dependent structures that require some form of grid or Monte Carlo analysis for the pricing and hedging itself. This is all bad enough for market risk calculations, but counterparty credit exposure calculations are even more daunting. These require multiple potential paths for market data across many future simulation dates. Furthermore, many market risk analysis short cuts, such as cashflow



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consolidation, have only limited applicability in counterparty exposure calculations due to the lack of universal netting across trades.

Competing priorities

The consequence of all this is that compromise across competing priorities is a more intense problem for risk calculations than for pricing and hedging calculations. The areas where compromises are necessary include:

- The complexity of the simulation of market dynamics.
- The sophistication in the modelling of co-variation across market variables.
- The trade-off between the number of scenarios and the accuracy of the results from Monte Carlo simulations.
- The timeliness of results and the ability to use risk information as a decision support tool rather than simply after-the-fact reporting.
- The cost of hardware and software relative to the profitability and risks of the activity being controlled.
- The flexibility and clarity of presenting results to risk managers in support of better decisions.
- Acceptable business risks versus po-

tential inaccuracy of results due to analytical simplifications.

On a broad basis, these competing goals demand compromises among:

- Analytic perfection.
- Computing realities.
- Effective information delivery.
- Residual risk arising from the impact of compromises on the previous points.
- Budget constraints.

Achieving compromise

Reconciling these competing goals is complicated by the specialised knowledge and experience required for a full understanding of each one. Command of financial analytics requires advanced mathematical training. Full appreciation of technology alternatives demands its own brand of professional expertise. Designing effective information delivery requires insight into the daily needs of risk management decision-makers.

Estimating residual risk from compromises on the previous points requires at least a working knowledge of each one plus familiarity with a firm’s products and how they are managed. To complicate matters further, budget constraints are often set at an organisational level well above deliberations on the foregoing issues.

As a result, authority over each of these competing areas of interest is often fragmented, with no effective means of achieving compromise among them. Often each constituency has an effective veto over any given solution, while no-one has the breadth of knowledge and the authority to force a workable compromise. In my view, this is a dangerous situation. An important role for any major trading organisation should be a senior executive in charge of risk information. Such a person must have sufficient insight into all the issues to command respect from each constituency while possessing the authority to impose compromises when necessary.

Some credit agencies have begun actively considering risk management effectiveness in determining their ratings. Assessing how risk management information systems are designed and deployed, especially how the necessary compromises are achieved, should be an important component of such assessments. ■