

Lagging risk management

The rate of growth in the complexity of new derivatives products is causing a worrisome lag in risk management's ability to keep pace. As credit derivatives markets endure a period of stress, this lag could have serious consequences, argues David Rowe

Competition is the great driving force of human advance. The essential flaw of collectivist approaches to public policy is to focus on static efficiency at the expense of incentives for innovation necessary for long-term growth. That said, competition does have its dark side when markets are booming, risk premiums fall and planning horizons shrink. When industry peers are reporting lucrative profits on the latest hot product, shunning such opportunities can have negative short-run implications on earnings comparisons and on a firm's stock price.

Intense competition is hardly a new story in the derivatives markets. Margins have been under continuous pressure for the past 20 years. The resulting market response has long been to introduce new innovative products to provide temporarily higher returns. From such competition has come many valuable innovations through the years. The danger, however, lies in the pressure that rapid innovation places on risk management systems.

One of the most obvious, but often ignored, realities of modern financial risk management is that risk simulation is inherently more computationally demanding than the pricing and hedging requirements of the front office. Using simple brute force pricing of every deal would mean a one-day value-at-risk simulation would require several thousand times the computing resources needed to perform a daily closing valuation of the book. Potential future credit exposure simulations are still more challenging and not as readily amenable to effective short cuts – such as cashflow consolidation – as VAR simulations. Coping with this reality has been a central challenge for risk management

information systems since at least the early 1990s.

The introduction of credit derivatives arguably represented a step change in the magnitude of this risk management challenge. Credit risk differs from traditional foreign exchange and interest rate risk in that it does not generate the same type of objective realised observations. Certainly, there is regular data for bond spreads and the Merton model allows practitioners to tease out regular expected default frequencies. But bond spreads can be interpreted in different ways based on recovery assumptions, and expected default frequencies are the output of a complex modelling process. In effect, the underlying data to be modelled is itself model-dependent.

Collateralised debt obligations (CDOs) place the co-variability of credit quality across firms at the heart of the valuation problem. CDO markets produce daily observations of implied correlations, but these are inconsistent across the tranches of a single CDO. Furthermore, unlike implied volatility in option markets, there is nothing historically analogous to implied correlation values.

The final source of difficulty is the growing complexity of credit derivatives structures. This takes two forms: one involves compounding the complexity of modelling tranching CDOs with CDO-squared and even CDO-cubed structures; the other is the introduction of new untested forms of debt such as subprime mortgages into the underlying pools of assets. Obviously, the presence of such instruments in a portfolio makes all tranches riskier, but there is no clear historical evidence to support an estimate of how much riskier.

One result of this accelerating pace of innovation and complexity is that many banks are experiencing a decline in the share of their traded assets being fully reflected in risk systems. Some are reflected in *ad hoc* workarounds, often with simplistic, albeit conservative, assumptions. Others are not reflected in risk systems at all, but are controlled by volume limits designed to constrain activity where the risk is largely opaque.

Is it possible we are seeing a systemic analogy to a firm going overboard in launching new products based initially on mark-to-model pricing? (I have long thought this was a significant element in the failure of Enron.) Certainly, the subprime CDO market has more two-way deal flow than such esoteric contracts as derivatives on broadband capacity. Nevertheless, liquidity in this market is a far cry from that in bonds, and there certainly is an element of mark-to-model involved in valuations.

Limited liquidity, complex structuring, untested underlying assets and lagging risk management coverage sound like a recipe for trouble. Irresponsible lending with little more than faith in rising housing prices for security may have been a step too far, but it is not the only reason for concern. The subprime mortgage market shows the consequences of pursuing headlong innovation at the expense of effective risk analysis. Unfortunately, some of the weaknesses being revealed in this sector are present elsewhere, with consequences that have yet to unfold. ■

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