Reason for hope

One disappointing aspect of the Basel II deliberations has been the lack of any proposed change in the treatment of counterparty credit exposures. David Rowe argues that recent dialogue between the Basel Committee and industry representatives offers hope for an important improvement in this area

The original Basel I Accord was initiated in the mid-1980s just as long-dated derivatives were emerging as an important risk management tool. It was recognised that these contracts gave rise to credit exposure of indefinite future magnitude on the books of market-makers. At the time, such exposure was material but comparatively small. This, combined with the perceived urgency in implementing the Accord, resulted in the simple (I might say simplistic) mark-to-market plus add-on approach to calculating loan-equivalent exposures.[1]

Both the industry and the regulatory community have long recognised that a more sophisticated approach should be allowed for major dealers. This would be consistent with the demand for use of best-practice internal models for regulatory as well as internal risk management that began with the market risk amendment to the Accord in the mid-1990s. To date, however, a lack of consensus on the structure of such an approach has hampered progress.

Expected positive exposure approach

In response to the Basel Committee's Consultative Paper 2 (CP2), issued in January 2001, the International Swaps and Derivatives Association submitted a proposal to use simulation-based expected positive exposure (EPE) as the loan equivalent for derivatives counterparties. This was effectively rejected by the Committee as giving insufficient consideration to the uncertain volatility of future exposure. More recently, Isda joined with the London Investment Banking Association and the Bond Market Association in preparing a revised proposal as a response to Basel CP3 published at the end of April.[2]

The essence of the Isda analysis[3] is to document the empirical ratio between:

☐ total economic capital estimated by simultaneously simulating the exposure of each counterparty over time and the distribution of defaults conditional on the market factor realisations creating each exposure path; and

☐ total economic capital estimated by deriving expected positive exposure first and then applying the distribution of defaults treating this exposure amount as fixed.

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The study refers to this ratio as α. The proposal is to reach a consensus on an appropriately conservative value of α to be applied to EPE in arriving at a loan equivalent for the purposes of calculating regulatory capital.

Factors affecting α

Several factors affect the value of α in an actual portfolio. The following are worth noting:

☐ **Pair-wise correlation between default drivers across counterparties.** If these correlations are high, it increases the importance of default volatility relative to exposure volatility and reduces the value of α. For most dealers, counterparties are spread across many industries and regions, making the average default correlations comparatively low and increasing the relative importance of exposure volatility.

☐ **The level of current exposure.** Low current exposure means most exposure at default is the result of future volatility. This increases the relative importance of exposure volatility in the calculation and increases α. High levels of current exposure tend to reduce α.

☐ **The average absolute value of correlations between changes in exposure across counterparties.** A small average absolute value of such correlations increases the implicit diversification in exposure sensitivities. This minimises the relative importance of dynamic exposures in the full simulation approach to estimating the loss distribution, resulting in a lower value of α.

☐ **Dispersion of the sensitivities of the counterparty exposures to market risk factors.** Large exposure sensitivities concentrated in a small number of counterparties effectively reduce the granularity of the portfolio relative to equal sensitivities for all counterparties. (This can also be interpreted as reducing the effective number of counterparties.) Low granularity increases the importance of exposure volatility and increases α.

☐ **The number of counterparties.** Even with a small number of market factors, exposure sensitivities across counterparties tend to be weakly correlated. In this case, increasing the number of counterparties reduces the volatility of aggregate exposure and results in a smaller α.

Conclusion

For assumptions consistent with the characteristics of most diversified dealer portfolios, the Isda study indicates that α is around 1.10. It argues that mandating a value of 1.20 for α would give prudently conservative exposure estimates in all but rare cases. These exceptions could be handled under Pillar II of the Accord. While details have still to be negotiated, it appears we may finally be moving away from exclusive reliance on the antiquated mark-to-market plus add-on approach to reflecting derivatives credit exposure in regulatory capital requirements. ■

David Rowe's third column on operational risk will appear in the October issue

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[1] For a more detailed discussion of the origins and problems surrounding the add-on approach, see Rowe D, The Evolution of Counterparty Credit Risk Management*, in* Modern Risk Management: A History*, Risk Books, pages 205–222*

[2] The executive summary (Isda CPY Recommendation.pdf) and the full study (Isda CPY Survey.pdf) are available at www.isda.org

[3] Much of the technical support for the Isda proposal was prepared by Evan Picoult of Citigroup, Eduardo Canabarro of Goldman Sachs and Tom Wilde of CSFB. After the research for this proposal was completed, Canabarro joined Morgan Stanley