

Regulatory arbitrage: back to basics

The increasing tradability of credit risk is creating complications for the Basel capital Accord that were never envisioned when the market risk amendment was first formulated. David Rowe argues that the problem is a basic inconsistency between Basel's assumptions regarding the treatment of risk in the banking and trading books

Since the market risk amendment to the Basel capital Accord was introduced in the mid-1990s, there has been recurring discussion about the multiplier applied to internal value-at-risk estimates in arriving at the associated minimum regulatory capital requirement. As far as I can tell, this is best characterised as a 'regulatory comfort factor'. Apparently, a multiplier of between three and four represented a consensus among national banking supervisors as a level of capital that intuitively seemed sufficient given a value for 10-day VAR at a 99% confidence level.

In the mid-1990s, market risk was only a small, albeit growing, share of total risk for even large globally active banks. It was also largely unrelated to credit risk considerations, being driven primarily by interest and exchange rates, as well as equity and commodity prices. There was little overlap in the sense of credit variables driving market risk.¹

Potential regulatory arbitrage

Today, of course, the world is very different. Since the late 1990s, credit risk has become a widely traded commodity in an ever-expanding variety of forms. This has opened up many ways for sophisticated banks to convert traditional balance-sheet credit exposure to mark-to-market exposure in the trading book. As a result, the Basel Committee has expressed concern that the current treatment of market risk is inadequate to capture the implications of jump-to-default and possible excess concentrations of credit exposure in the trading book.

Ideally, the regulatory capital rules should embody a consistent treatment such that shifting a credit exposure from the banking book to the trading book would reduce required capital only to the extent that this

actually resulted in lower risk. At the Risk Management 2005 conference in Geneva last December, Evan Picoult presented a useful framework for considering how this could be achieved. He pointed out that two time horizons need to be considered. The first is the capital horizon (T_{Cap}), the length of the future period over which capital is to be assessed. This is widely treated as one year for both economic and regulatory capital calculations. The second relevant interval is the liquidity holding period (T_{Liq}), or the time required to neutralise an institution's exposure to changes in a position's value.

For banking book credit positions, the existing Basel capital rules imply that $T_{Liq} = T_{Cap} =$ one year. For the trading book, clearly $T_{Liq} = 10$ days, but the value of T_{Cap} is not explicit. Assuming the square root of time rule applies, the minimum VAR multiplier of three can be interpreted implicitly to imply that $T_{Cap} = 90$ business days ($10 \text{ days} \times 3^2$). In calendar terms, this means $T_{Cap} = 18$ weeks, or slightly over four months. This raises the apparently unanswerable question of why T_{Cap} should be different for positions in the trading book versus the banking book. If T_{Cap} is to be one year for the trading book, the 10-day VAR should be scaled up to 250 trading days rather than 90 trading days, implying a multiplier of $\sqrt{250/10} = 5$.

A further complication is that the Basel Committee's internal model approach for banking book credit risk assumes a target confidence level of 99.9%, compared with 99.0% for market risk. If the underlying distributions are normal, this implies a further multiplier of $3.10/2.33 = 1.33$.² Therefore, the combined multiplier to take 10-day 99% VAR to one-year 99.9% VAR would be 6.6.

Picoult also points out that a longer liquidity period for many credit positions has no impact as long as we assume the current measured level of risk remains constant for the full period T_{Cap} and that the square root of time rule applies. The latter condition may not hold, he notes, if the probability of jump-to-default over T_{Liq} (expressed in days) is more than T_{Liq} times such probability for one-day and idiosyncratic jump-to-default risk has not been diversified away. A further possible cause of such failure is non-linear loss sensitivities. Any of these conditions would imply a further increase in the multiplier.

Conclusion

The Basel Committee has addressed the potential for regulatory arbitrage from shifting credit exposure between the banking and trading books. It has done so by imposing supplemental requirements for treatment of credit-related exposures in the trading book. Perhaps a better approach would be to correct the conceptual inconsistencies between the treatment of risk in these two areas. ■

¹ It was well understood, of course, that conventional derivative trading gave rise to counterparty credit exposure and simulation methods to address this issue were already well developed

² Picoult prefers to begin from 99.9% as the accepted confidence level, and argues that a multiplier of 3 for 99.0% 10-day VAR implies T_{Cap} of $90/(1.33^2) = 50$ business days or roughly 2.5 months

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