No cure through the cycle

Some have argued that the antidote for pro-cyclicality in the Basel II capital requirements is the use of 'through-the-cycle' estimates of default and recovery rates. David Rowe argues that, while this might mitigate the pro-cyclical impact of the Accord, it would also introduce unacceptable vagueness into the estimates and seriously undermine the basis for back-testing and verification

The fundamental meaning of credit ratings remains a hotly debated topic. In particular, should such ratings represent credit strength corresponding to normal economic conditions (so-called through-the-cycle ratings) or should they reflect the current and prospective stage of the business cycle (so-called point-in-time ratings)? The main rating agencies argue that their analysis measures long-term financial viability. Even such ostensible through-the-cycle estimates, however, tend to exhibit some movement induced by business downturns and recoveries. Nevertheless, such an approach would reduce the cyclical sensitivity of credit ratings to the level of business activity.

One possible approach to reducing the pro-cyclical impact of risk-sensitive regulatory capital requirements is to insist that internal ratings be done on a through-the-cycle basis.[1] The idea is to estimate each default probability (PD) and loss-given default (LGD) based on normal economic conditions. Corresponding unadjusted estimates would be based on the responsiveness of realised PD and LGD to actual economic conditions in any given period.

Let $B_{a,t}$ be the actual business conditions in period t and B_n be 'normal' business conditions. For PD, the internal rating system would estimate $PD_{n,i}$, the default probability over a given time horizon for obligor i assuming normal business cycle conditions prevail during the period. The unconditional estimate for the actual default probability of obligor i in period t ($PD_{a,t,i}$) would be derived from a mathematical relationship between PD and B. Thus, if $B_{a,t}$ represents actual economic conditions in period t:

$$PD_{a,t,i} = f\left(PD_{n,i}, B_{a,t} - B_n\right)$$

If minimum regulatory capital were based on values of $PD_{n,i}$, it would vary less over the cycle than if it were based on direct estimates of $PD_{a,t,i}$. Clearly, this would reduce the pro-cyclical impact of regulatory capital.

Harder than it looks

On the surface this looks like an ideal solution. Cyclicality of the required capital would be moderated while estimates of $PD_{a,t,i}$ based on actual business conditions would be available for use in back testing.[2] Unfortunately, this apparently simple framework hides some serious practical difficulties.

David Rowe is group executive vice-president for risk management at SunGard Trading and Risk Systems
e-mail: david.rowe@risk.sungard.com

The entire approach assumes the ability to isolate a stable relationship between some indicator of business conditions and the behaviour of default probabilities and loss-given default. To be simple and transparent, it would be desirable to apply a single economic indicator and a common functional relationship across all countries and all banks. In fact, of course, credit profiles differ dramatically across banks even within individual countries, not to mention across countries and regions. Variations in industry concentrations, market segments and credit standards result in very different economic indicators driving the cyclical movements in default and recovery rates for different banks. Even for a single bank, successful modelling of the cyclical pattern of defaults is likely to require disaggregation across business lines.

One effect of all this is to complicate the already difficult problem of back testing the internal credit rating process. Such back testing would involve comparing default experience against the hypothetical default rates implied by internal ratings adjusted for economic conditions. With through-the-cycle ratings, it becomes virtually impossible to disentangle the error contribution of inconsistent ratings from statistical noise in the cyclical adjustment process.

As Michael Gordy of the Federal Reserve has pointed out, most risk indicators are point-in-time in spirit. This includes traditional market value-at-risk as well as expected default frequencies based on a Merton approach such as that used by KMV. Point-in-time estimates are also needed for effective pricing of credit risk based on expected losses and the cost of credit capital allocations.[3] In addition to complicating the validation process, forcing banks to rate credits on a through-the-cycle basis would destroy much of their signal value to the market. Such ratings also would have to be 'cyclically unadjusted' before being used for pricing and economic capital allocation purposes.

For better or worse, business decisions unfold in a non-cyclically adjusted world. Credit analysis is intended to achieve effective allocation of scarce credit within the actual conditions likely to prevail during the term of the exposure. To be sure, every credit analyst cannot be an expert at economic forecasting. Given one or more hypothetical forecasts, however, such analysts should have special insights concerning the impact of prospective economic conditions on the performance of the kinds of credits they review. Forcing them to set ratings on a through-the-cycle basis effectively removes these special insights from the process and replaces them with a mechanical statistical approach to translating ratings into unconditional default estimates. Frankly, based on my years as an econometric modeller and forecaster, this strikes me as a highly undesirable trade-off. ■

[1] C Catarineu-Rabell, P Jackson and D Tsomocos, *Procyclicality and the new Basel Accord – banks' choice of loan rating system, Bank of England working paper, 2002*

[2] *Obviously the values of actual business conditions would not be known in advance, so estimates of $PD_{a,t,i}$ would have to be based on forecasts of $B_{a,t}$. Presumably values of $B_{a,t}$ would be used in deriving values of $PD_{a,t,i}$ for use in back testing the rating process*

[3] *M Gordy, Procyclicality in Basel II: can we cure the disease without killing the patient?, presentation to the Credit Risk Summit USA, October 8, 2002, New York*