Economic Capital Estimation: Best Practices in Retail Credit

An overview of the latest research from RMA's Working Capital Group

Since 1999, the RMA Capital Working Group has been conducting research to demonstrate to the Basel Committee how best-practice institutions estimate and assign economic capital. RMA believes that the 1988 Capital Accord should be revised to align regulatory capital with economic capital. RMA's research supports this goal. The group's latest paper focused on retail products and is summarized below. The complete paper and supporting data can be found on RMA's Web site.

Three broad types of economic capital (EC) estimation processes are used by the 12 banks participating in this survey:

1. EL-sigma approaches.
2. A structural model that directly employs loan default correlations (LDCs).
3. A structural model that directly employs obligor asset value correlations (AVCs).

Each type of EC estimation process has strengths and weaknesses. The consensus of the RMA Capital Working Group is that the EL-sigma approach is not superior to the other two. Indeed, since the last RMA survey on this subject (in 2000), there appears to be a modest migration toward AVC models by Group members.

Each of the other two EC processes can be "translated" into an AVC model, either through the mathematics of the structural modeling process (in the case of LDC models) or by plugging the EC estimated through an EL-sigma approach into an AVC model and "solving backward" for the implied AVC.

Eleven of the 12 Group members responding to our survey provided detailed information on their internal EC allocations (for credit risk) for each of nine broad retail product categories: single-family first mortgages; term home equity loans; home equity lines of credit (HELOCs); credit cards; retail leases; unguaranteed student loans; small business loans (managed as retail credits); other secured credits; and other unsecured credits. The internal EC results for the reporting banks are contrasted with the proposed Basel capital requirements.

The new AVC assumptions used by Basel (as embodied within the third Quantitative Impact Survey—QIS 3) represent an improvement over earlier proposals for retail products. Nevertheless, there remain significant differences between the internal EC calculations of these leading institutions and the current Basel proposals.

Implied AVCs for the reporting banks for all products are significantly lower than the AVCs used by Basel within the three regulatory AVC "models" for retail credits (mortgages, revolving credit, other). The differences appear to be greatest for mortgage products in all probability of default (PD) bands and for nonmortgage products in the lower PD (high-obligor-quality) ranges.

With the exception of first mortgage products, the relation between AVC and PD for the survey banks is somewhat "flatter" than in the nonmortgage Basel models. That is, the Basel choices of AVC are much higher than industry AVCs at the lowest PD levels.

None of the survey banks, indeed no bank that we know of, estimates economic capital by setting EC equal to loss at the chosen confidence interval. Rather, all banks subtract estimated expected loss (EL) from loss at the confidence interval, because credit products are priced such that net interest margins less net noninterest expense are at least enough to cover estimated EL (and must also cover a desired return to capital). Capital, therefore, is needed only to cover unexpected losses (loss estimated at the confidence interval minus EL).

The survey results suggest several straightforward recommendations for improving upon the proposals embedded within QIS 3. These recommendations also incorporate the Group's consensus view on the questions raised within the U.S. agencies' November 26, 2002, Retail Issues paper.

EL should be subtracted from loss at the confidence interval with regard to all retail credit products, not just cards. This is the theoretically correct thing to do. Moreover, responses to our survey indicate that, in virtually every case, future margin income (FMI) exceeds EL, so there would be no purpose served by establishing an FMI test (i.e., the test would routinely be met).

Even with EL subtracted from loss at the confidence interval, Tier 1 capital requirements generally exceed internal capital calculations (with the exception of the highest PD ranges for some products, for which Basel AVCs are slightly lower than industry median AVCs). In the U.S., furthermore, true Tier 1 minimums (known as "well capitalized" minimums) are even further above internally calculated EC. Rather, regulatory capital should represent a true minimum, with banks desiring to hold more than those minimums.

The AVCs for mortgages should be lowered from their current 15% level to the 6-10% range shown in the survey.

The survey shows that the steeply declining Basel AVCs (as PD rises) for revolving and other credits result in very great differences between internally estimated AVCs and Basel AVCs in the low PD ranges. There is a wide diversity of views within the survey group over the extent to which, if at all, AVCs should decline as PD rises. All Group members agree, however, that the Basel AVCs should be lowered in the lowest PD ranges (best quality customers) for all three Basel "product" categories.

Home equity lines of credit (HELOCs) have been mentioned as an especially difficult problem because some market participants view HELOCs as performing more like "other" retail products (or more like "card" products) than single-family residential products. Indeed, the survey's median implied AVCs for HELOCs do differ somewhat from the AVCs for regular mortgages—declining from roughly 10% at the lowest PD ranges to roughly 6% at higher PD ranges. (Like other retail products, implied AVCs for mortgages rise substantially in the very lowest ["troubled asset"] PD ranges.) There appear to be three possible solutions to this problem:

1. Basel can develop a fourth AVC structure specifically for HELOCs, reflecting industry median AVC assumptions.
2. Basel can continue to place HELOCs within the "mortgage" category, if Basel AVCs for mortgages are lowered down to the 6-10% range used by the industry.
3. Basel can place HELOCs within the "other" category, if Basel AVCs for other retail credits are lowered down to the range used by the industry.

If Basel chooses to maintain its three Retail AVC structures unchanged, then a majority of the RMA Group banks suggest that advanced banks be given permission, after supervisory review, to choose the regulatory "model" into which a particular retail product should be slotted, based on best-practice internal estimation of actual or implied AVCs. Thus, if empirical research suggests that HELOCs act more like "other" or more like "cards," an advanced bank could petition supervisors to move HELOCs from the "mortgage" category to one of the other two categories.

The Group's consensus is that Basel should not incorporate a separate EL approach for banks using so-called EL-sigma approaches to measuring economic capital for retail credits, since these banks can measure PDs and LGDs for each product segment. Nevertheless, the four banks in the survey that do use EL-sigma approaches would rather not have to conform to the PD-LGD structure currently being proposed by Basel for retail credits. ❐

View the full 70-page report

"RMA Retail Credit Economic Capital Estimation—Best Practices" is available on RMA's Web site at the following address:

www.rmahq.org/Basel2/Basel_intro.htm

A list of participating institutions and staff members can be found in the full document; for information, contact Pamela Martin, director of Regulatory Relations and Communications at RMA, by e-mail at pmartin@rmahq.org.