

Addendum to Research Paper

Mortality Requirements in MCCSR, TAAM and CAR

Committee on Risk Management
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**ADDENDUM TO RESEARCH PAPER
MORTALITY REQUIREMENTS IN MCCSR, TAAM AND CAR**

RE: MCCSR MORTALITY RISK: APPROXIMATIONS FOR CALCULATION OF VOLATILITY COMPONENT FOR AN INDIVIDUAL LIFE INSURANCE PRODUCT

The following is a supplement to the February 2005 CIA Research Paper, *Mortality Requirements in MCCSR, TAAM and CAR*. In the “Volatility Component” section of this paper, the capital required for volatility risk is defined involving the calculation of two factors A and B.

In certain situations there may be insufficient data available to calculate *A* and *B* for a set of individual life insurance products. For example, this may occur on a reinsurance block where seriatim data has not been provided by the ceding company. One would expect that efforts would normally be made to obtain seriatim data, but if this is not a practical option, the actuary could approximate *A* and *B* for the block using the results for a block of business that has similar characteristics to the block in question. In identifying a similar block, any information available that relates to the distribution of face amounts and the duration of the projected net death claims would be considered. In such cases, the actuary would be expected to explain why using factors based on the similar block produces appropriate results. If a similar block is not available, the actuary would select a block that is likely to produce a more conservative capital requirement (i.e., a block for which the variation of face amounts and duration of projected death claims is probably greater than for the block for which the estimates are being made).

The approximation that may be used for individual blocks described above is:

$$A_X = A_S * K_X / K_S \quad \text{and} \quad B_X = B_S$$

where:

- the subscripts *X* and *S* represent the block being approximated and the similar (or more conservative) block, respectively
- *K* is calculated for each of the two blocks using the following formula:

$$K = C / \sqrt{N}$$

- where *C* is the projected value of the upcoming year’s total net death claims for all policies in the block, and *N* is the expected number of total deaths for the upcoming year for all policies in the block.

If the actuary does not have information available on the expected number of total deaths for the upcoming year in the block being estimated, the following approximation may be used:

$$A_{X+S} = A_S * (C_X + C_S) / C_S$$

where *C* is the projected value of the upcoming year’s total net death claims for all policies in the respective blocks *X* and *S*, and the subscript (*X + S*) represents the combination of blocks *X* and *S*.