Life Annuity and the Evolution of Mortality

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As is so well known, the mortality tables play a fundamental role in determining rates for Life Assurance.

In as much as the general demographic tendancy is a reduction in mortality, the trend as time goes on is that the real mortality of the insured is less than had been considered when the premiums were calculated. This fact, when applied to risk insurance, increases the margin of security for the Insurer but when applied to Pension Insurance, the effect is the opposite.

Life Annuity falls into this latter category, where any increase in longevity reduces the underwriting results.

Given the difficulties being experienced by state Pension Systems in many countries, the near future should more than likely see greater development of Private Systems, with a considerable increase in the sale of Life Annuities.

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An analysis of recent events in Germany should be very illustrative, regarding the mortality of life annuity policy holders.

Since 1989 the table 1987 R had been used to calculate premiums as well as for determining reserves, until several insurers warned that the table reflected mortality rates superior to those that were in fact occurring in their client portfolios. It has been shown that during the 1980's in Germany, the average annual increase in longevity of people between the ages of 60 to 90 years was 1,8% for men and 2,1% for women. These figures are far superior for those recorded during the last 100 years (0,49% annually for men and 1,02% for women). This explains why that table was so inaccurate, it had not forseen such important increases of longevity.

In the meantime, the German Actuaries Association had developed a new table (DAV 1994 R) based on more rigourous criteria, and in which, apart from the predictable tendancy, a "Safety" margin was introduced to compensate for unfavorable deviations in mortality. This new table has been officially authorized by the Supervisory Body and must be applied in all new business as of the first of this year, and gradually introduced into portfolios so that it will be fully applied within eight years.

Adaptation to portfolio will be made easier by the existence of a moderate technical interest rate combined with a participation in the underwriting profit, so that this might absorb the entire supplementary financing.

The DAV-1994 R table determines mortality by two criteria; the first by age and the second by date of birth, which allows for the effect that the forseeable increase in longevity will have in time.

In conclusion, it can be said that in Life Annuity in order that mortality and its future evolution may be accurately evaluated, the following steps should be considered most appropriate:

– Develop mortality tables of insureds in the portfolio, which entails cooperation amongst Insurance Companies in order to obtain an adequate statistical base. The Mortality of life assured is generally lower than that of the overall population. In regard to holders of annuity policies, individual contracting, with its built-in selectivity, will tend to accentuate this even more.

– Using mortality tables based on portfolio, create projection tables incorporating the tendencies of increased longevity in time. A safety margin for unfavorable deviations in these trends should be included.

Use of a reasonably moderate guaranteed technical interest rate combined with a participation by the assured in the underwriting profit has a stabilizing effect, as it allows for compensating a negative deviation of mortality, should this occur, with a positive differential of financial yield. As an example, on analyzing a sample from a Life Annuity portfolio, contracted under existing conditions in Spain, showed that an unforseen improvement of mortality of 1% (cumulative) could be compensated with an annual differential of yield of some 0,35 points.