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Life Reinsurance Data from the Munich American Survey

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DISCLAIMER:
This survey is prepared by Munich American Reassurance Company at the request of the Society of Actuaries Reinsurance Section as a service to Section members. The contributing companies provide the numbers in response to the survey. These numbers are not audited and Munich American, the Society of Actuaries, and the Reinsurance Section take no responsibility for the accuracy of the figures.

Munich American's annual survey, which is conducted on behalf of the Statistical Research Committee of the Reinsurance Section, covers Canadian and U.S. ordinary and group life reinsurance new business production and in force. The ordinary numbers are further subdivided into:
1) conventional reinsurance (recurring)[1] ,
2) reinsurance with an issue date in a year prior to the year in which it was

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by Manon Laverdiere & Jas Bhatia

Editor's Note: Details of this study are available on the SOA website. It can be found under Reinsurance in the Special Interest Section.

Manulife Reinsurance, in conjunction with the Reinsurance Council of the Society of Actuaries, conducts an annual study of mortality experience on large amount and older age policies. The experience data is submitted to the Society of Actuaries by nine contributing companies. The consolidated data is analyzed in terms of mortality ratios by number and amount, and the results are further subdivided by age, sex, duration, smoking and underwriting status, reinsurance method, and level of retention.

The exposure includes only single life policies issued in the United States and valued in U.S. currency. Expected deaths are based on 100% of the SOA 1975-80 Select & Ultimate table which varies by age and sex, age nearest and age last birthday. The basic tables were extended to issue age 90 and the resulting tables were used to calculate the expected mortality for issue ages greater than 70. Ultimate ages were also extended in the 1991 study to age 105 from 100.

The 1999 large amount study covers experience for calendar year 1996 and the earliest issue year reported was 1960. Manulife has been conducting these studies since 1990 covering experience during calendar years 1987 and later. The advanced age study has been conducted since 1993 covering experience in calendar years 1990 and later. Both studies present results individually for each calendar year as well as a cumulative result of all study years. The results of

Chairperson's Corner....

by William Wellnitz

On behalf of the Reinsurance Section Council, I would like to express my appreciation to Munich American Reassurance for once again conducting the Life Reinsurance Production and Inforce Survey. I would also like to thank the companies that participated in the survey. Over the years, this survey has drawn increasing attention and has been relied on as source of industry data in a wide variety of applications including rating agency and stock analyst reports. This widening use is both gratifying and troubling. Of foremost concern is the integrity and reliability of the data presented.

Considerable effort has been put into the survey procedures and instructions so that the process does not create a burden on the reporting companies while ensuring that the data is useful and informative. However, the quality of the data reported is entirely in the hands of the participating companies.

Over the last few years there have been instances where the data provided has been suspect. In those instances, Munich will attempt to resolve any reporting issues with the company. However, in the end, Munich will report

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the Older Age and Large Amount studies will be discussed separately.

1999 Large Amount Study: Results

Policies for large amounts are those with a total face amount greater than $1 million.

The experience underlying the year 1996 data is based on a total exposure of $42 billion and claims of $77 million. The exposure by number is 121,138 policies and 176 deaths. The overall mortality ratio is 44.1% by amount and 54.5% by number. This is an improvement over the 1995 ratios which were 50.6% and 51.4% respectively and continues the trend in improvement since 1991. In fact, the 1996 ratio is the lowest in all study years.

The experience underlying the years 1987-1996 data are based on a total exposure of $639.3 billion and claims of $1.4 billion. The total exposure by number is 1,090,130 policies and 1,874 deaths. The overall mortality ratio is 60.2% by amount and 60.5% by number.

The mortality ratios are also presented for various classifications, first for 1996 experience alone and then the cumulative result for the entire study period from 1987 to 1996.

Sex:
87% of the total exposure was from policies issued on male lives. The mortality ratio by amount is 42.8% for males and 52.0% for females.

The ratios by number are 54.8% and 51.8%. Ratios by amount for 1987-1996 are 58.4% and 73.8% for males and females. Ratios by number are 59.1% and 72.7%.

Issue Age:
More than 80% of the claims by number and 86% of claims by amount occurred between issue ages 40 and 69. Mortality ratios by amount for issue age groups 40

to 49, 50 to 59, and 60 to 69 are 24.6%, 65.4%, and 60.8%.

Comparable ratios by amount for the 1987-1996 period are 61.3%, 66.3%, and 62.8%.

Policy Years:
The mortality ratio by amount for durations 1 & 2 are below the overall ratio (44.1%) by 7% and 6% respectively. The mortality ratios for policy years 3 to 5 are between 7 and 44% above the overall ratio.

In the 1987-1996 period, the mortality ratio is high in year 1 due to aviation claims and varies between 49% -60% in years 2 to 4. The ratio in years 6 to 10 is high due to large claims over the years.

Smoking Status:
89% of the total exposure amount was from policies issued on non- smoking lives. Only 5% of the total exposure amount were aggregate issues. The overall mortality ratio by amount for non-smokers is 45.7% compared to 44.5% in 1995.

The ratio for smokers is 44.0% (156.1% in 1995). The ratio by amount for the 1987-1996 period is 52.0% for nonsmokers and 114.3% for smokers. Note that the expected table is not differentiated by smoker status resulting in a much higher ratio for smokers.

Underwriting Status:
Standard issues represent 94% of the total exposure amount. The mortality ratio by amount for standard policies is 45.7% compared to 51.2% in 1995 and 36.3% (46.9% in 1995) for sub-standard policies. The ratios by amount for the 1987-1996 period are 61% for standard policies and 55.5% for sub-standard policies.

Reinsurance Status:
The mortality ratio for facultative business is lower than that for automatic

business, in contrast to all previous years except 1994.

The facultative ratio is 36.0% compared to the automatic which is 55.7%. The ratios by amount for the 1987-1996 period are 65.9% and 53% for facultative and automatic reinsurance.

Plan of Insurance:
Data by plan of insurance was provided for approximately 38.1% of the total exposure amount. The policies were grouped Universal Life, Whole Life, and Term with mortality ratios by amount of 23.9, 25.4, 57.5% respectively. A result for 1987-1996 is not available.

Method of Reins:
The mortality ratios by amount for YRT reinsurance is 44.6% and 40.9% for coinsurance. A result for 1987-1996 is not available.

1999 Advanced Age Study: Results

Policies for advanced age are those with an issue age of 70 or over.

The experience underlying the year 1996 data is based on a total exposure of $1.3 billion and claims of $16.2 million. The exposure by number is 6,176 policies and 144 deaths. The overall mortality ratio is 32.8% by amount and 54.3% by number.

The experience underlying the years 1990-1996 data are based on a total exposure of $11.3 billion and claims of $156 million. The exposure by number is 66,354 policies and 1,453 deaths. The overall mortality ratio is 41.3% by amount and 56.1% by number.

The mortality ratios are also presented for the various classifications, first for 1996 experience and then the cumulative result for the entire study period from 1990 to 1996.

Sex:
55% of the total exposure by amount was from policies issued on male lives. The mortality ratio by amount is 30.1% for males and 38.1% for females.

This compares to 28.1% and 31.8% in 1995. The ratios in 1996 (1995) by number are 51.1% (49.3%) and 60.9% (59.9%) for males and females. The mortality ratios by amount for 1990-1996 are 39.4% and 45.6%. Ratios by number during the period are 53.6% and 62.3%.

Issue Age:
Almost all of the claims occur between the ages of 70 and 79 since over 95% of the exposure is in this range. This is consistent through all study years.

Policy Years:
The mortality ratio by amount varies greatly by duration with the highest ratio at duration 16+.

The mortality ratio by number is less than the overall ratio for durations 1-5, with the exception of duration 5.

Smoking Status:
The mortality ratio by amount is 30.6% (24.9% in 1995) for non-smokers and 26.0% (62.6% in 1995) for smokers. The ratios by amount for the entire study period 1990-1996 are 35.1 and 78.6%, respectively.

Underwriting Status:
Standard issues represent 77.1% of the total exposure. The mortality ratio for standard policies is 32.9% and 32.8% for substandard. Ratios by amount for the 1990-1996 period are 42.2 and 39.4%.

Reinsurance Status:
Facultative business accounts for over 70% by exposure amounts. The mortality ratio for facultative business is lower than for automatic business in 1996. The facultative ratio by amount is 25.5% compared to 56.4% for automatic. The corresponding ratios by amount for the 1990-1996 period are 39.4% and 42.4%.

Plan of Insurance:
Data by plan of insurance was provided for approximately 49.4% of the exposure. The policies were grouped by Universal Life, Whole Life, and Term with mortality ratios by amount of 23.6%, 28.2%, and 48.8%. A result for the combined years 1990-1996 is not available.

Method of Reins:
The mortality ratio by amount for YRT reinsurance is 30.8% and 35.9% for coinsurance. A result for study years 1990-1996 is not available.

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the final numbers supplied. These reporting deviations have the potential to harm the integrity of the survey and the reliability of it as a measure of the health and vitality of the life reinsurance market.

I would encourage all users of the survey to carefully reflect on the data before drawing any conclusions or incorporating the data into any analysis. I also encourage those actuaries at the participating companies who are responsible for providing the survey data to make sure that they understand the reporting definitions and that they apply the same high level of professionalism to the survey response as they do to their other actuarial duties.

It is the hope of the Reinsurance Section Council that with careful construction and thoughtful use, this survey will continue to be reliable and informative and justify the effort it takes to produce. Again, my thanks to all involved.