CHANGES IN FINANCIAL REPORTING

MR. GORDON R. CREBER: When I was first approached to participate in this panel discussion, it was described to me as an opportunity for the "front-line" actuaries involved in the valuation, financial reporting process to discuss the practical issues and problems encountered in attempting to deal with the changes occurring in the Canadian reporting environment. The members of the panel would discuss, first, the implementation of the policy premium method (PPM) under a GAAP environment (as required for the June report) and, second, the implementation of the dynamic solvency testing process. You will note, of course, that the mandate does not contemplate a discussion of solutions.

I am the Director, Corporate Actuarial, for the Munich Reinsurance Company, Canada, and have primary responsibility for completion of valuation activity, analysis of results, experience studies, and surplus projections. I also have responsibility for the determination of assumptions to be used for future experience, both for valuation as well as for projection of future financial results.

The Munich Reinsurance Company operates in Canada as a branch of a foreign company and, as such, falls under the reporting requirements as outlined in the Foreign Insurance

Companies Act. The primary business lines written are life insurance and accident and sickness insurance, with particular emphasis on the risk elements of these products, rather than on any investment or nonforfeiture value related items.

I intend to give you a brief overview of, first, some of the major issues that we encountered in completing the June 30 report, followed by some brief comments on issues that have arisen recently, and not so recently, in modeling activity that we have done for projecting financial results.

The first major issue encountered was the issue of resources. I suspect that, with this issue, we tend to identify fairly closely with the perceived view of the smaller company. The total resources allocated to the corporate actuarial function are not extensive, being myself, two actuarial associates, and one analyst. The first four to six months of any calendar year represent the busiest period for the corporate actuarial area at the Munich Re, Canada. It is the period of time during which all of the external financial reporting, and the majority of the internal financial reporting and analysis activity, is completed. I firmly believe that, if I were to try to justify adding additional resources in the corporate actuarial area, for the sole purpose of providing another report required by the Canadian authorities or the Canadian Institute of Actuaries, that I would have a great deal of difficulty. The only realistic justification for spending additional company resources is if more relevant, timely,

management information will be available once the exercise is complete. I believe that this can be the result and that any plan to incorporate additional reporting requirements must have improvement of management information as a primary objective. The insurance business environment, both in Canada and in the rest of the world, has become far more complex and unstable than at any time in the past, and the information that we, as actuaries, provide to management must be continuously reviewed to ensure that it is the most appropriate for the current environment.

The net valuation premium method, and the various modified net valuation premium methods, are all based on simplifying assumptions with respect to elements of expense in the insurance transactions. As my economics professor used to tell me, when you make simplifying assumptions, the conclusions arrived at reflect the simplified world, but are unlikely to reflect the real world.

Special Report on the Policy Premium Method

Having said that, I will now move on to make some specific comments with respect to the June 30 report and some of the problems and issues which we encountered in the completion of this report. First, I would note that our valuation system uses a reserve calculation mechanism which is written in APL. I would describe this particular system as one which accounts for all future possible policy benefits, and all future possible policy

revenues, to which appropriate contingency assumptions are applied to determine probable policy benefit payments and probable policy revenues. With this information already available to the valuation system, the addition of a PPM reserve calculation was trivial. Therefore, the main issues and problems encountered in doing the June report were with respect to the setting of the contingency assumptions.

The most significant contingency assumptions for our in-force block of business, as you might well expect, are the mortality assumption and, to a lesser extent, the lapse assumption.

Setting of the mortality assumption is a multistep process as indicated in Slide 1. The problem is determining the order of the steps to properly fit these pieces together.

When I first looked at the mortality assumption, I took to heart the comment made in the exposure draft memorandum -- Provisions for Adverse Deviations (PAD) -- which states that "the expected assumption should be the valuation actuary's best estimate as to the future experience and trend for the product." If strictly followed, this is a variance from the method traditionally used in setting statutory valuation assumptions, where the emphasis is more on ensuring that the total assumption is conservative.

SLIDE 1

MORTALITY ASSUMPTION FOR PPM

	STEP:
Expected	1-
	2-
AIDS	3-
	Smoker/
Valuation Technique Paper #6	Non-Smoker 4-
Published	5-
Tables	Current
	experience 6-
Future	7-
Improvement/	VTP#2
Deterioration	8-

My reading of the CIA Recommendations for Life Insurance Financial Reporting, as modified for combined GAAP and solvency reporting, supports this view of setting a "best estimate" expected assumption without undue conservatism or liberalism.

I found Valuation Technique Paper #6, Expected Mortality Experience for Individual Insurance, to be an extremely useful frame of reference in that it discusses all of the major issues involved in setting the expected assumption. However, I believe that Technique Paper #6 encourages what I will call creeping conservatism in the expected assumption and, if followed blindly, will cause one to stray away from "best estimate" expected assumption.

In my opinion, the best starting point for setting the "best estimate" expected assumption is recent company experience. The process of examining recent company experience provides one opportunity for enhancing the quality of information provided to senior management and is likely one of the benefits that can be derived from this whole process. This activity also provides the opportunity to set the groundwork for establishing the base case scenario assumptions for dynamic solvency testing.

Intercompany experience can be useful as a source of information; however, I would stress the requirement to determine the comparability of the intercompany study data to the

products being valued. It can be difficult to convert the results of intercompany experience studies into "best estimate" expected assumptions for your company's particular block of business, market, and underwriting classifications. It is also difficult to identify the impact on the intercompany data of such things as smoker versus nonsmoker mortality, and excess deaths due to AIDS, since this type of information is limited or not available.

The 1988 Guidance Notes for Valuation Actuaries, excess deaths due to AIDS, was written with almost total emphasis on solvency, and makes little attempt to separate a "best estimate" expected assumption, and a provision for adverse deviation. Therefore, in determining the "best estimate" assumption, the valuation actuary must determine which scenario is most likely, and also determine a "best estimate" adjustment of the population data to the particular products being valued.

When considering the excess deaths due to AIDS, it is essential to note that the rates of excess deaths due to AIDS in the 1988 Guidance Notes are calendar year rates. Therefore, to determine the "best estimate" expected mortality assumption, including deaths due to AIDS, requires the combining of a select and ultimate mortality table with a calendar year mortality table to arrive at the total expected deaths for the following valuation years.

Valuation Technique Paper #2, the Valuation of Individual Renewable Term Insurance,

describes a method of accounting for the future deterioration of mortality where excessive lapses have occurred, or are likely to occur and, in my view, is consistent with the determination of a "best estimate" expected assumption. An issue that must be grappled with at this point is whether the expected selective lapses used in projecting the deteriorated mortality should include a margin for PAD. I would argue that the selective lapse assumption must be a "best estimate" assumption with no margin.

Once you have determined the "best estimate" assumption, split by sex and smoking status, if appropriate, including a provision for excess deaths due to AIDS, and deteriorated for future selective lapses, then you can turn to the provision for adverse deviations memorandum to determine how to add an appropriate margin. You will find that the expectation of life is to be calculated using ultimate rates for each attained age. The problem with this definition is the determination of what are ultimate rates, given that you have an expected assumption which varies by issue age, by duration, and by calendar year. I believe the practical approximation is to calculate the expectation of life using the actual, select and ultimate, "best estimate" expected mortality assumption, with a suitable increase to the constant in the numerator.

The other critical assumption for our particular portfolio is the lapse assumption. The method for adding margin for provision for adverse deviation, although theoretically

appealing, creates large practical problems due to the significant volume of work required to revise the margin on the lapse assumption once any other assumption is changed. This, of course, comes about since point A -- the first duration where the reserve is higher than the nonforfeiture value -- will shift towards the point of issue as the level of the reserve increases. Point A will also typically vary by issue age of the policy. I am still struggling with determining a programmable solution to this problem.

I would also add the comment at this point that I am somewhat concerned with the statements made in the memorandum "Provisions for Adverse Deviations" that valuation technique papers take precedence over the procedure of establishing a "best estimate" expected assumption, and then adding margin for the provision for adverse deviation. I believe that the valuation technique papers, and the method of establishing margin for PAD, must be reviewed and made consistent with one another.

Dynamic Solvency Testing

I will now make a few comments with respect to activity done to date on the dynamic solvency testing process.

For a number of years, the Corporate Actuarial area at Munich Re, Canada, has been producing a five-year projection of business results, by major line of business, for our

current block of business, including various projections of the level of new business anticipated on each line of business.

The particular models used for each line of business vary by degree of complexity and efficiency. The degree of complexity tends to be proportional to the significance of the particular line of business, on the overall company results. Unfortunately, the efficiency tends to be inversely proportional to the significance of the line of business.

This five-year projection meets the definition of the base scenario for dynamic solvency testing and, in some years, would also meet additional scenario requirements for sensitivity to the level of future new business. The assumptions used to project in-force business are "best estimate" expected assumptions, which tend to be consistent with the "best estimate" expected assumptions derived under the policy premium method valuation.

In moving from this projection, the base scenario, to an environment where we can efficiently project the ten prescribed scenarios and additional scenarios, as required, will entail a significant amount of work to improve data flow from the various line of business models, improvement of certain of the line of business models, a revamping of the methods used to ensure consistency of assumptions between the various line of business models, and the establishment of a mechanism for revising valuation assumptions to be consistent with

the particular projection scenario. I have no doubt that these activities will not all be accomplished by the end of 1989, or by the end of 1990. Our experience gained in the past from running the five-year projection model certainly highlights the importance of not attempting to make changes to the modeling system too quickly. It is far more important to make your changes at a rate at which the model results can be confirmed against actual experience, so as to ensure that the credibility of the model is maintained.

I would also note that the results for years beyond the next two, tend to be useful only as an indication of the direction that results may take under that particular scenario. It is one of the great truths of doing this type of projection, that the only thing that you can say for certain, about results beyond the next two years, is that they will, in no way, reflect what actually comes to pass.