FINANCIAL REPORTING TOPICS

MR. KURT VON SCHILLING: This presentation will describe the sensitivity study the CIA has undertaken. Generally accepted accounting principles for life insurance financial reporting in Canada are expected to be adopted imminently. The Canadian Institute of Chartered Accountants has adopted an introductory date of January 1, 1990. The changes to the Canadian life insurance financial reporting concepts have been generally endorsed by the Canadian Life and Health Insurance Association and the Canadian Institute of Actuaries.

Throughout all of the discussions that have taken place on the changeover from the 1978 Canadian Method to the Policy Premium Method (PPM), the Office of the Superintendent of Financial Institutions (OSFI) has expressed concerns with respect to two specific aspects of PPM in particular.

1.   The potential for front-ending of products.

2.   The increased sensitivity of the method, compared to net premium methods, to small changes in valuation assumptions.

The Financial Reporting Committee of the Canadian Institute of Actuaries accepted the task to provide OSFI with the Sensitivity Study of the Policy Premium Method versus the 1978 Canadian Method. Twelve Canadian companies were approached to value the existing block of nonparticipating Canadian business on the 1978 Canadian Method and the Policy Premium Method utilizing the identical interest mortality lapse and expense assumptions. Nine of the twelve companies have submitted their data, and I would like to share with you preliminary results of the study.

In total, the nonparticipating insurance segment represents $1.5 billion of reserves out of the total of $77 billion of actuarial liabilities in Canada. The data were also split into three categories, traditional life and endowment business, regular term, and lapse supported including term-to-100 business. The investigation focused on the effect on the reserves of weakening each of the four major actuarial assumptions.

1.   A 10% improvement in mortality

2.   Interest rates would be higher by 100 basis points

Valuation Technique Paper #3 stipulated maximum re-investment rates that can be assumed for the purposes of this study. This was disregarded.

3.   For traditional and term products, the lapse rate was reduced by 10% at all durations, and for lapse supported products, the lapse rate was increased by 10%. In both instances the reserves would be weakened. Again, the maximum stipulated in the Valuation Technique Paper #3 was to be ignored for the purpose of this study.

4.   Future administrative expenses would be lower by 10%.

The mathematical formula to calculate actuarial reserves is made up of two basic components. The first component represents the present value of future benefits and expenses. The second component represents the future value of premiums. Under the net level premium method or the 1978 Canadian Method, the premium factor included in the second component is calculated using the valuation assumptions. However, under the Policy Premium Method the premium contained in the second factor is the actual gross premium payable. Hence, under the Policy Premium Method, the second component is more constant than under the 1978 Canadian Method. The 1978 Canadian Method also limits the amount of marketing and sales expenses that can be included in the valuation premium calculation to 150% of the valuation premium. For this reason, at issue, the valuation premium under the 1978 Canadian Method is less than the gross premium in most instances. By just looking at the mathematical formula, it is quite obvious that the reserve values would be increasing or decreasing to a greater extent under the Policy Premium

Method than under the 1978 Canadian Method for the identical change in valuation assumptions. By definition, the Policy Premium Method is more responsive to such changes in assumptions.

A. Total Reserves - Canadian Method

It is noteworthy that the increase in interest assumptions had the greatest impact on reserves, followed by mortality (Slide 1). Whereas, a change in lapse assumptions resulted in slightly higher reserves than standard.

B. Total Reserves - PPM Method

All four changes in assumptions resulted in larger decreases in reserves than under the 1978 Canadian Method. In this instance, the reduction in reserves for the mortality and interest assumptions was just about identical. The last column in the table looks at the ratio of the reserve under the PPM versus the reserve under the 1978 Canadian Method by variation in assumption. The standard PPM reserve is almost 16% less than the 1978 Canadian Method. This is particularly due to the removal of the limitation under deferral of acquisition expenses. As valuation assumptions are weakened for each contingency, the PPM reserve reduces slightly more than the reserve under the 1978 Canadian Method. This is apparent because in the last column shown on the table, the ratio falls below the standard ratio. The most pronounced effect is if all contingencies are reduced which is as

TOTAL RESERVE

1978 Canadian Method

	Reserves in millions	% of Standard
Standard	$1,513	100.0%
Mortality	1,395	92.2
Interest	1,364	90.1
Lapses	1,523	100.7
Expenses	1,488	98.3
Combined	1,241	82.0

PPM

	Reserves in millions	% of Standard	PPM/1978 Canadian
Standard	$1,276	100.0%	84.3
Mortality	1,101	86.2	78.9
Interest	1,104	86.5	80.9
Lapses	1,270	99.5	83.4
Expenses	1,238	97.0	83.2
Combined	882	69.1	71.1

expected. The reduction is most pronounced by 5.4 percentage points for the mortality assumption. In my opinion, the PPM is slightly more responsive to changes in assumptions. If valuation assumptions are weakened, the reduction in reserves is slightly greater than under the 1978 Canadian Method. On the other hand, if assumptions are strengthened, the increase in reserve will also be slightly higher than the increase in reserves under the 1978 Canadian Method. In my opinion, the slightly higher degree of responsiveness to changes in the assumptions is acceptable.

C. Traditional Products - Permanent Life Insurance - Canadian Method

Over 2/3 of the amount of reserves analyzed was with respect to traditional permanent life insurance products (Slide 2). For the segment of the Canadian nonparticipating life insurance business, the impact of weakening reserve assumptions was at most 7% for the interest assumption. The reduction in lapse assumptions and expense assumptions had a very minimal impact on total reserves.

D. Traditional Products - Permanent Life Insurance - PPM

As can be seen from the table, the impact of the changes in the valuation assumption is slightly stronger. However, as can be seen from the last column, the maximum impact is an additional 2.6 percentage points under the interest assumption. Again, in my opinion, the PPM is more responsive to changes in valuation assumptions, and the degree of

TRADITIONAL PRODUCTS

Permanent Life Insurance

1978 Canadian Method

	Reserves in millions	% of Standard
Standard	$1,073	100.0%
Mortality	1,047	97.6
Interest	1,004	93.6
Lapses	1,067	99.4
Expenses	1,063	99.0
Combined	962	89.7

PPM

	Reserves in millions	% of Standard	PPM/1978 Canadian
Standard	$924	100.0%	86.1%
Mortality	879	95.1	83.9
Interest	838	90.7	83.5
Lapses	910	98.5	85.3
Expenses	904	97.8	85.0
Combined	757	81.9	78.7

responsiveness is quite acceptable.

E. Lapse Supported Products - 1978 Canadian Method

This segment of the Canadian nonparticipating life insurance business is fairly young (Slide 3). The age of the business falls all within the most recent five issue years. You will note that the percent in reductions in reserve due to changes in valuation assumptions are higher than under the permanent insurance plans. This is particularly true for the interest and mortality assumptions.

F. Lapse Supported Products - PPM

As you can see from the table, the percentage reductions in reserve values are slightly larger than under the 1978 Canadian Method. Again, for this product, the reserves are more responsive to changes in valuation assumptions under the PPM. In my opinion, the degree of responsiveness is quite acceptable and not excessive. The largest movement is slightly over 6 percentage points for the interest assumption.

G. Regular Term & YRT - 1978 Canadian Method

You will note that for these product lines the reserves increase for the changes made in the lapse assumption (Slide 4). The lapse rates were reduced by 10%. From the results,

SLIDE 3

LAPSE SUPPORTED PRODUCTS

1978 Canadian Method

	Reserves in millions	% of Standard
Standard	$218	100.0%
Mortality	193	88.5
Interest	155	71.1
Lapses	211	96.8
Expenses	215	98.6
Combined	129	59.2

PPM

	Reserves in millions	% of Standard	PPM/1978 Canadian
Standard	$211	100.0%	96.7
Mortality	181	85.8	93.8
Interest	140	66.4	90.3
Lapses	203	96.2	96.2
Expenses	206	97.6	95.8
Combined	102	48.3	79.1

SLIDE 4

REGULAR TERM AND YRT

1978 Canadian Method

	Reserves in millions	% of Standard
Standard	$222	100.0%
Mortality	154	69.4
Interest	205	92.3
Lapses	245	110.4
Expenses	210	94.6
Combined	150	67.6

PPM

	Reserves in millions	% of Standard	PPM/1978 Canadian
Standard	$141	100.0%	63.5
Mortality	41	29.1	26.6
Interest	126	89.4	61.5
Lapses	158	112.1	64.4
Expenses	128	90.8	61.0
Combined	23	16.3	15.3

it is quite apparent that even these products are lapse supported, and hence, the more appropriate instruction should have been an increase in lapse rates. This would be the same instructions as for lapse supported products. The reserve reduction as a result of an improvement of 10% in the mortality assumption is quite significant. The impact of an almost over 30% reduction was not as pronounced for the permanent and lapse supported products.

From the table above, you will note that the percentage change in reserve values for each valuation change is more pronounced than under the 1978 Standard Method. This is particularly true with respect to the mortality assumption. You will note that for the lapse assumption, reserve values increased, and the increase under the PPM is more pronounced than under the 1978 Canadian Method. In the last column, the ratio of PPM reserves to 1978 Canadian Method reserves is shown. The apparent impact with respect to the mortality assumption change is quite noticeable. As I indicated, these results are a summarization of the results as preliminary, and an analysis of the data submitted by each company indicates that there is a significant variation, and a verification of the data submitted is necessary. Excluding the mortality assumption, the relationship of changes in PPM reserves to changes in 1978 Canadian Method are slightly more pronounced but quite acceptable.