



AMERICAN ACADEMY *of* ACTUARIES

**REPORT OF THE JOINT ACADEMY OF ACTUARIES/SOCIETY OF ACTUARIES PREFERRED
MORTALITY VALUATION TABLE TEAM**

**Presented to the National Association of Insurance Commissioners'
Life & Health Actuarial Task Force**

May 2008

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BACKGROUND

In 2005, the National Association of Insurance Commissioners (NAIC) Life and Health Actuarial Task Force (LHATF) requested that the actuarial professional bodies develop mortality tables that could be used to better reflect the actual mortality of companies for reserving.

Specifically, LHATF requested that:

1. The Society of Actuaries develops studies of preferred risks.
2. The American Academy of Actuaries and the Society of Actuaries develop preferred levels of valuation mortality.
3. The American Academy of Actuaries recommends requirements to be met in order to use such preferred valuation mortality.

At this time, the work on the experience studies, underwriting criteria, and Valuation Basic Tables have been substantially completed. The reports on this work can be found on the Society of Actuaries website, www.soa.org.

The major work remaining at this time is to determine what margins should be used in developing the Valuation Tables. The Preferred Mortality team made a presentation at the March 2008 LHATF meeting. There were questions from various regulators regarding some considerations on margins. This paper is intended to provide the requested information to LHATF on margins, as well as to solicit input on the margins that should be established.

This report is divided into a discussion of the mortality margins, the outstanding questions on margins, and a sample calculation spreadsheet to assist in determining the effect of various margins. This last item is accompanied by a slide presentation to show the effect of the margins.

MORTALITY MARGINS IN VALUATION TABLES – BACKGROUND OF 2001 CSO LOADING AND DISCUSSION OF PURPOSE OF MARGINS

From a March, 2001 presentation to LHATF

The following points were made about the loadings in the 1980 CSO:

- The prime constraint on margins (loadings) was that reserves on the loaded table not be materially less than reserves developed using underlying select and ultimate mortality.
- Terminal reserves on the loaded table should not be significantly distorted when compared with terminal reserves on the graduated basic table.
- The methodology should be consistent in providing margins for both male and female tables.
- Loaded mortality rates should not result in unreasonable statutory premium deficiencies on term insurance plans.
- Loaded mortality rates should encompass the standard mortality experience in 1970-75 (the period from which the basic table was derived) of most companies writing ordinary insurance with normal underwriting standards.

For the **2001 CSO**:

- The first four considerations were retained.
- Consistency was expanded to include smokers vs. nonsmokers, and select vs. ultimate periods.
- The fifth consideration was replaced by saying that the margin should provide reasonable margin for possible future adverse mortality experience (a broader consideration than simply comparing to the companies contributing to the experience study).
- A sixth consideration was added: Reserves and net premiums on the loaded table should not be excessive. [No definition of “excessive.”]

Two loading formulas were shown, both using a similar structure to the formula for the 1980 CSO, and one being exactly half as large as the other.

- The larger formula had a 20% margin overall. The loaded mortality was as large as the experience for 17 of 21 companies (81%). Note that this comparison ignored the mortality improvement baked into the 2001 VBT from 1990-95 to 2001, so that the coverage was actually somewhat larger than “advertised.”
- The smaller formula was based on some sample calculations of economic reserves for a 20-year term plan. Economic reserves as used here were not gross premium reserves, but net premium reserves with more realistic assumptions for lapse and interest. The conclusion was that using a 10% mortality load on formula reserves was roughly equivalent to using a 20% mortality load on economic reserves, because the lack of a lapse assumption on the formula reserves was an additional margin that is worth about 10%.
- There were sample reserve calculations comparing 1980 CSO to the 2001 VBT with both 10% and 20% loads, and using both level term and whole life, but these calculations primarily just illustrated that the 2001 CSO reserves were going to be substantially lower than the 1980 CSO reserves, regardless of margin.
- There were some additional arguments for a smaller margin:
 - Placing more reliance on cash flow testing and RBC and “X-factor” testing.

The end result was that LHATF recommended a 15% load and keeping the same formula format as the 1980 CSO.

From the June, 2002 final report on the 2001 CSO:

Margin Formula:

- The 1980 CSO formula is $(0.0350 - 0.00025x + 0.000009x^2)/e_x$
- The 2001 CSO formula is $(0.0056 - 0.00016x + 0.000008x^2)/e_x$.

Comments in the report about the 2001 CSO margin formula format:

- The constant term produced a 15% margin for males at age zero (but it later became 8% when the age zero rate was increased in the 2001 VBT table).
- The negative term keeps the loading appropriate at younger ages.
- The x^2 term maintains the margins at higher attained ages (this element overwhelms the other two factors above age 50).
- Using e_x in the denominator helps to provide a load that monotonically increases by age and a percentage that generally decreases by age.

The overall margin was intended to be 15%, but the report does not specify how the task force concluded that the formula equated to an overall 15%. There are a lot of calculations showing percentage loads for various issue ages and cumulative durations. “Eyeballing” these, it does appear that the overall margin is about 15%.

There is a lengthy section in the report describing how well the loaded table covers variation by company.

- For policy years 1-15, 15 of 21 companies (71%) were covered.
- For policy years 1-25, of 14 companies who contributed data for entire period, 100% of companies were covered, though this percentage was smaller when females and smokers were considered separately.
- For ultimate experience, 11 of 14 companies (79%) were covered.
- As a result of these analyses, the task force concluded that the loaded mortality covered the 1990-1995 experience of the individual companies “most of the time during both the select and ultimate periods.”

Purposes of the Margin

While comparing the consistency of margins for smokers and nonsmokers, the 2001 CSO task force decided to explore the purpose of mortality margins in more detail, and this was done in Appendix H. In this appendix, they identified four purposes of margins. They then attached values to each of these components and compared the aggregate to the proposed loads in the 2001 CSO. Their conclusion was that the loads were comparable (and, most importantly, consistent between smokers and nonsmokers). The magnitudes of some of their values appear arbitrary. However, that does not detract from the validity of the concepts. Following is an initial discussion of these concepts by the Valuation Table Team:

Confidence:

- Mortality should be sufficient to cover the “true” mortality level underlying the experience study. In other words, the experience study should have enough data to be fully credible. The 2001 CSO table was assumed not to need any margin for this purpose.
- For the 2008 valuation tables, since the Primary Table is derived from a subset of the experience data (i.e., larger policy sizes), is there enough data to be deemed fully credible? We believe the answer is “yes.”
- The Primary Table has a number of relative risk versions for business issued in a preferred risk structure, to be assigned on the basis of UCS scores. There was a limited amount of SOA data available for analyzing the mortality associated with different UCS scores.
 - It should be noted that the relative risk table assignment is a **split** of the Primary Table. This reduces the amount of aggregate error in mortality, as assigning too low mortality for a preferred class will be offset by too high mortality for the residual class.
 - The assumption for the proportion of business in each class could have a bias effect. For example, assume that preferred mortality is 70% of aggregate and residual standard is 130% of standard, and the proportion is equal volume of business in each class. So, the weighted average is 100%. But, what if the actual underlying mortality in our aggregate table was composed of 55% preferred business and 45% residual standard? Then the 70% and 130% relative assumptions produce an aggregate 97% mortality, and the assumption, in aggregate, is 3% understated.
 - Note that the relative value tables grade together in later durations, so that any error introduced by proportion assumptions also would wear off in later durations.
 - Note that the current PBR mortality assumption setting process envisions picking a relative risk table by “rounding up” the calculated percentage to the nearest available table. For example, if the UCS calculation produces relative mortality levels of 74% and 118%, the assumption will use the 80% and 120% relative risk tables. This “rounding up” is an additional margin, but the magnitude will vary by company.

Company Variation:

- Assuming that companies without credible experience will use the valuation table without adjustment, the table should have margin sufficient to cover a large proportion of companies. What is “large”? The 2001 CSO covered only 71% of companies for durations 1-15.

The Valuation Table Team performed some analysis of individual company A/E ratios in the 2002-04 experience study. The results are summarized in the table below.

Size Band	Select		Durations 26+	
	Duration 1-10 100-2,499K	Duration 11-25 50-2,499K	Ages 25-79 25-2,499K	Ages 80+ 25-2,499K
Total Deaths	18,796	44,428	6,912	5,714
Aggregate A/E	68%	69%	75%	87%
# Companies > 100 Deaths	27	25	9	5
Std.Dev. Of A/E	21%	17%	23%	12%
# Cos With A/E > 110% Aggr.	11	6	5	2
# Cos With A/E > 115% Aggr.	9	4	4	1
# Cos With A/E > 120% Aggr.	6	3	2	0

We limited the analysis to those companies that, in each of the four groups in the summary, had at least 100 deaths. There were relatively few companies contributing ultimate data (and, of the 25 companies who had at least 100 deaths in durations 11-25, the majority only had data in durations 11-15). We used the same face amount bands that were used to develop the Primary Table.

We calculated the standard deviation of the individual company A/E ratios, as a percentage of the overall A/E ratio (recognizing that this is not a reliable statistic for the ultimate durations, where there are so few companies). Then, we counted the number of companies that exceeded certain percentages of the aggregate A/E ratio, namely, 110%, 115% and 120%.

Some observations and comments:

- If the goal is to have valuation mortality that covers mortality of roughly 75-85% of contributing companies, then it appears that the margin would be about 20% of mortality in early durations, graded to 10% at higher ages. Interestingly, the 2001 CSO margin in the first 10 durations averages roughly 30% (though this varies by age), and the margin in higher age/ultimate durations is roughly 10%.
- Testing is needed, but we expect margins of this magnitude will have a large impact on reserves.
- If companies with credible experience can omit this margin, they will have lower reserves than companies without credible experience
- Some of the variation among companies could be attributable to randomness.
- Some of the variation in durations 11-25 might be attributable to differing amounts of term insurance (10-year level and ART) among the contributing companies, where the term would have higher mortality (and where PBR specifies that an adjustment should be made to the anticipated experience).
- Canada's valuation standards indicate that margins in general should be 5-20% of expected. They are more specific for mortality, specifying a margin range of 3.75-15 deaths per thousand, divided by ex. This produces fairly large margins at early durations/young ages, but quickly grades down to far less than 10% at higher attained ages.
- The variation that we see in the experience study results is only valid for margin setting for companies using the 2008 VBT table as their assumption without any adjustment for experience.
- Some company variation may be caused by differing proportions of preferred business, and having different assumptions for preferred and residual standard business will offset this variation. However, we will not be able to demonstrate this.

Random Fluctuation:

- The 2001 CSO task force addressed this by looking at the variation for one year’s experience of a defined block of business. Obviously, this is greatly affected by the size of the block. They calculated a one-standard deviation fluctuation for one year’s experience.
- We believe the provision in the reserve, if any, should be based on a present value of all years’ mortality, rather than a single year. This should reduce the percentage margin vs. a single year. Single years’ fluctuations are better covered by capital.
- We performed a stochastic calculation on sets of 10,000 and 100,000 lives, where all lives were male issue age 45, duration 1, equal face amounts, using 100% of the 2008 VBT Primary Table as expected mortality. We tested annual lapse rates of 2% and 6%. We projected 1000 stochastic scenarios, where both mortality and lapse were stochastic. We then calculated the present value of deaths over each scenario. The standard deviation of the 1000 present values, divided by the average of the present values, is a measure of the effect on present value of mortality from randomness. The results are shown in the table below. Some comments on these results:
 - The longer the projection period, the lower the variation, because there is more total deaths over the period.
 - The variations in the table are somewhat overstated, because the variation in number of lives in force due to stochastic lapse also causes variation in amount of deaths.
 - The variation in the table is somewhat understated vs. the “real world” because it assumes equal face amounts, whereas typical portfolios would have a mix of face amounts.
 - If the starting point were a later duration than at issue, higher expected mortality rates would increase the total deaths, and reduce the variation.

Projection Period In Years	Std. Dev./ Average, of PV Deaths @ 5%			
	10,000 Lives		100,000 Lives	
	2% Lapse	6% Lapse	2% Lapse	6% Lapse
10	9.8%	11.4%	3.3%	3.7%
20	5.2%	6.6%	1.6%	2.2%
30	3.2%	4.7%	1.0%	1.5%
50	1.8%	3.5%	0.6%	1.2%

- An obvious problem is that we cannot set a single load that will cover randomness for both large and small companies – if we set it to cover small companies, it will be too much for larger companies. RBC factors for mortality do have larger factors for smaller volumes.
- Alternatively, perhaps the company variation margin will be deemed sufficient to cover the effects of randomness for companies without credible data. Companies with credible data may omit the company variation margin, but should perform their own analysis of impact on randomness on the value of reserves.

Unknown Variations:

- According to the 2001 CSO report, this covers:
 - One-time events, such as an epidemic
 - Changes in overall mortality levels that might occur due to things like AIDS or changes in general health conditions
 - By definition, this cannot be quantified
 - They did not try to quantify this (the one hypothetical example they constructed used only 0.1 per thousand for this).
- Small probability events (e.g., epidemic) should be covered by capital?

- It was noted that the absence of future mortality improvement in the assumptions represents a considerable margin for changes in overall mortality levels.
- The “company variation” component of margin at the higher ages may reflect an element of trend variance (where trends are caused by items such as antiselection).
- But, we should consider possible adverse trends, such as obesity. Note that smokers and older females have not had much improvement over the past 20 years.
- PBR will reflect changes when they become known.

QUESTIONS REGARDING MARGINS

The level of margins to be used for mortality tables is determined by the LHATF. The Valuation Table Team would like to assist LHATF by determining which factors are important regarding margins. The Valuation Table Team could use this information to develop potential margins for LHATF to consider.

Questions that would assist in determining the margins to consider:

- 1) Please confirm: Are we to determine margins for the PBA Gross Premium methodology, as opposed to the net premium methodology being discussed by the ACLI?
- 2) Regarding margins for company variation:
 - a. Assuming that companies without any credible experience will use the Valuation Tables as a default basis, the tables will need a margin sufficient to cover company variation. Keeping in mind that there is considerable variation by company for mortality levels, does LHATF have a target percentile for industry coverage by these margins?
 - b. Does the fact that PBR assumptions are to be updated as experience emerges allow for lower margin to cover company variation?
- 3) The experience underlying the industry tables have varying credibility by age, gender, risk class and duration. Is LHATF agreeable to having an overall margin that is allocated to these "cells" assuming similar credibility for all "cells"? For example, this might imply that margins could vary by duration such that the margin in the years closest to the valuation date is lower than the margin in later years (e.g., 20 years from the valuation date).
- 4) The Team is leaning towards a conclusion that "one-time" events (e.g., epidemics) should be covered by surplus, and not by reserves. Does LHATF agree?
- 5) Since reserve margins are not released in a manner that would cover annual fluctuation, and consistent with item (4) above, the Team is leaning toward a conclusion that the effect of randomness (due to having a small number of lives) should be considered in the context of present value of death benefits (i.e., a lifetime randomness rather than a year-by-year randomness). Does LHATF agree?
- 6) Currently, choosing a higher margin may result in first and sometimes second year strain, which is inconsistent with CRVM currently. Is LHATF comfortable with this or should the margin format/level be such to avoid this strain at issue?
- 7) Is LHATF comfortable with companies that have credible experience use lower margins than those without, depending on a level of credibility and possibly within some defined parameters?

SAMPLE CALCULATION SPREADSHEET

The attached calculation spreadsheet entitled “PBRReserveTesting – VBTTablesandMargins” was designed by Tom Kalmbach to evaluate different margin formulas.

The attached power point presentation entitled “ReserveExamplesPowerPoint” used the calculation spreadsheet to show examples of the effect of different margins on the reserves.

Sample Reserve Calculation Spreadsheet

Impact of Different Choices for New Table Mortality Margin



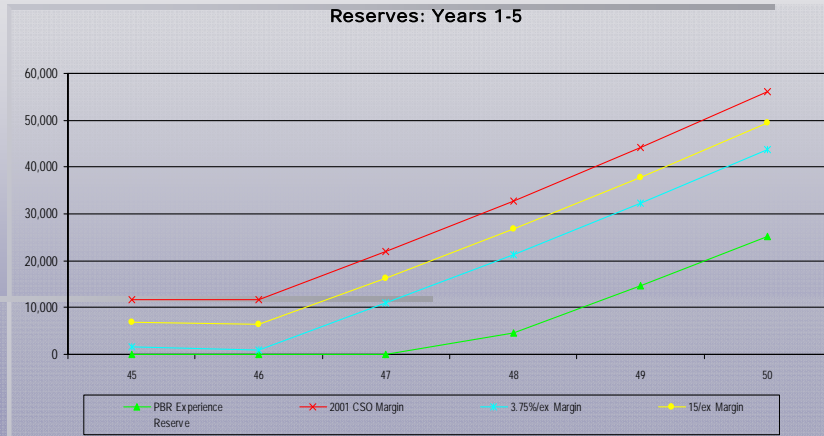
Assumption Summary

- **PBR Reserves**
 - Assumes AG38 Lapse Rates (Interim Solution)
 - 5% Investment Yield all years
 - Expenses
 - 99% FY Premium, 5% Renewal Premium
 - \$300 FY expense, \$75 renewal years
 - 8% profit margin in gross premiums
 - 2008 VBT – RR100 - Mortality Table
 - Margins
 - Mortality margins vary depending on selection.
 - Interest margin 50bps
 - Expense margin – none
- **CRVM Reserves**
 - 4% Interest
 - 2008 VBT – RR100 - Mortality Table
 - Mortality Margins vary depending on selection



Impact of Various Margins on PBR Type Reserves

Male 45, 2001 VBT, Pay \$10,439 All Years, Lifetime \$1,000,000 Death Benefit, 8% before tax profit margin on premium.

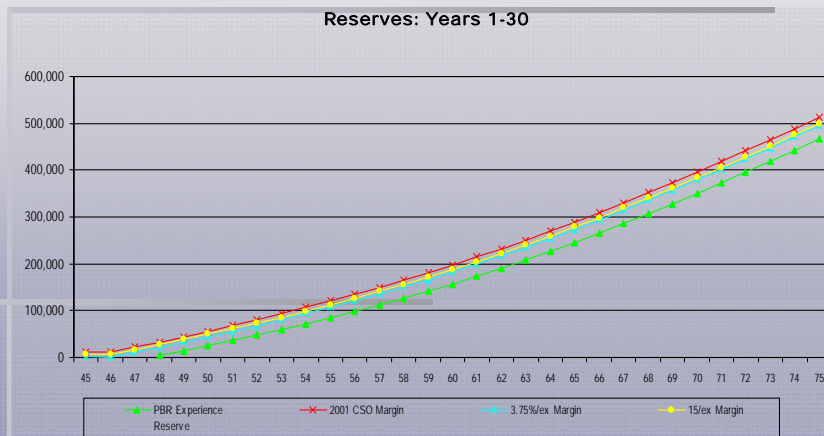


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Preferred Mortality Update
May 2008 3

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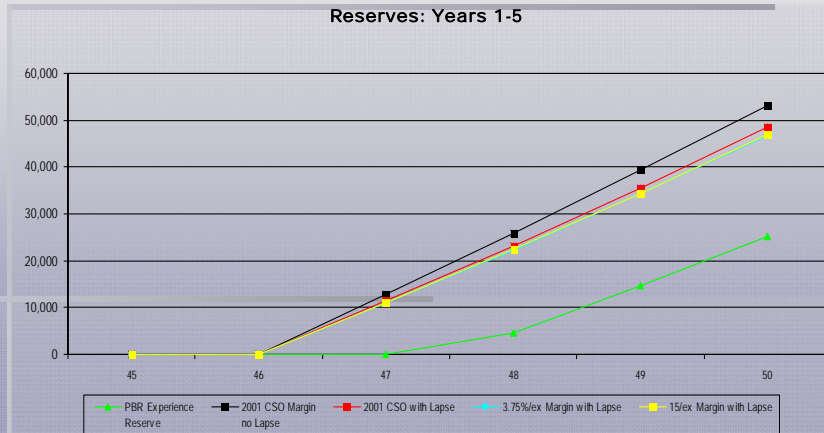


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Preferred Mortality Update
May 2008 4

Impact of Various Margins on CRVM Type Reserves

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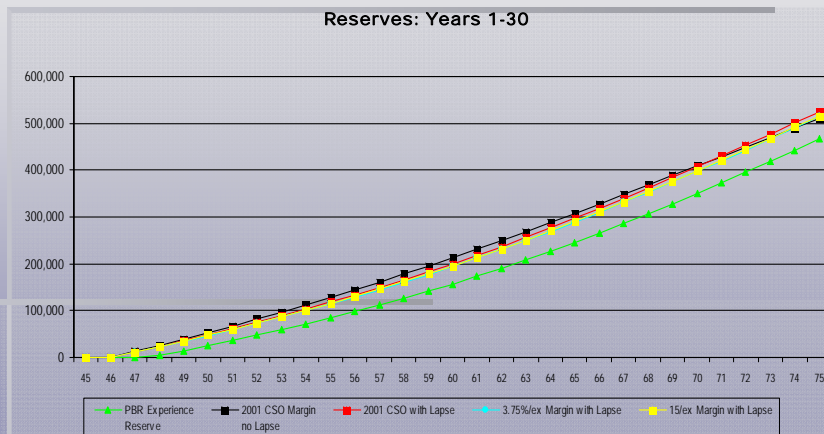


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Preferred Mortality Update
May 2008 5

Impact of Various Margins on CRVM Type Reserves

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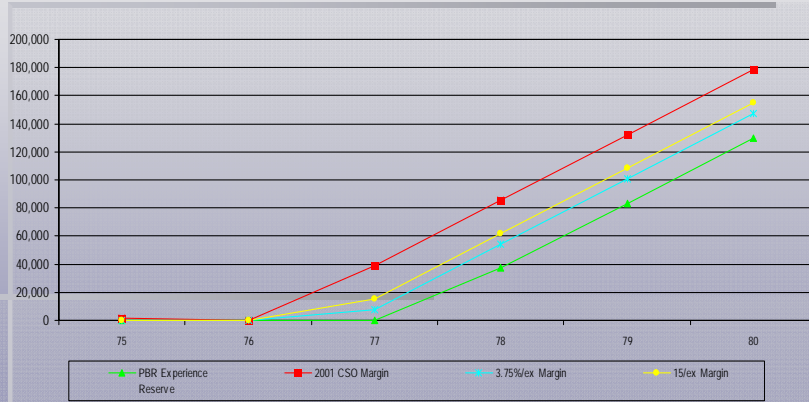
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Preferred Mortality Update
May 2008 6

Impact of Various Margins on PBR Type Reserves

Male 75, 2001 VBT, Pay \$58,948 All Years, Lifetime \$1,000,000 Death Benefit, 8% before tax margin on premium.

Reserves: Years 1-5



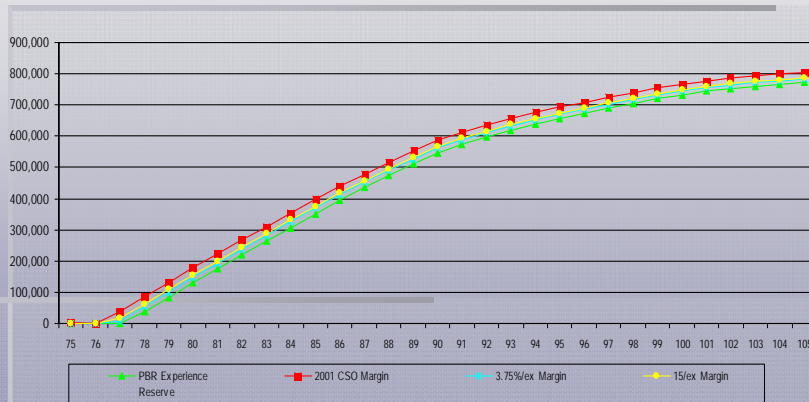
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Preferred Mortality Update
May 2008 7

Impact of Various Margins on PBR Type Reserves

Male 75, 2001 VBT, Pay \$58,948 All Years, Lifetime \$1,000,000 Death Benefit, 8% before tax margin on premium.

Reserves: Years 1-30

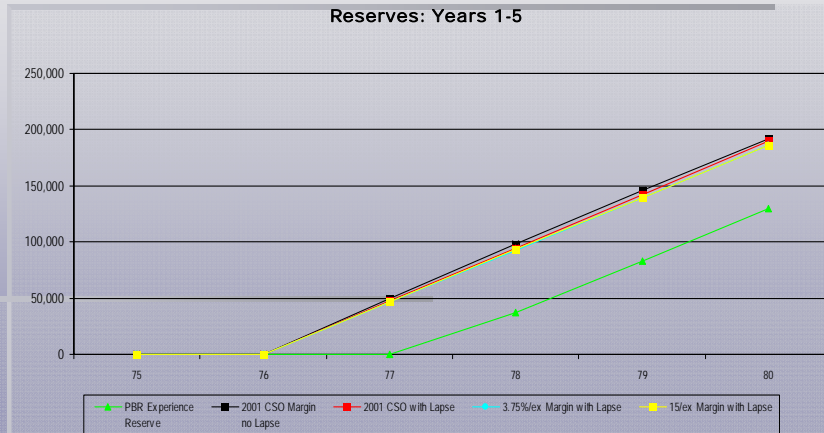


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Preferred Mortality Update
May 2008 8

Impact of Various Margins on CRVM Type Reserves

Male 75, 2001 VBT, Pay \$58,948 All Years, Lifetime \$1 million Death Benefit, 8% before tax margin on premium.

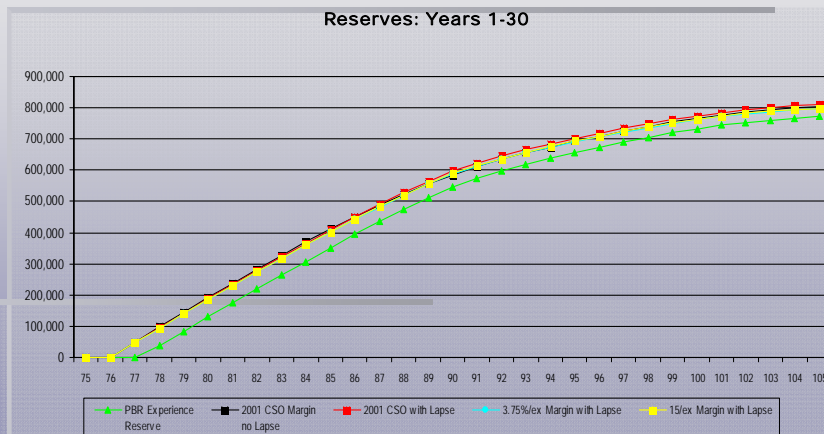


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Preferred Mortality Update
May 2008 9

Impact of Various Margins on CRVM Type Reserves

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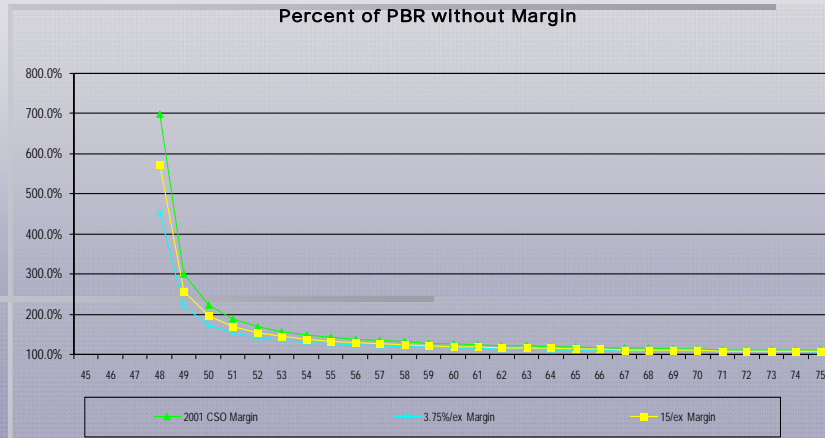


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Preferred Mortality Update
May 2008 10

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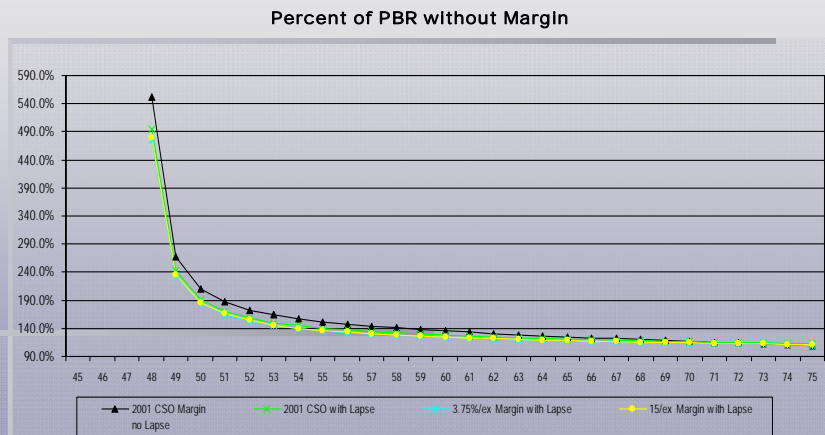


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Joint Society of Actuaries/American Academy of Actuaries
Preferred Mortality Update
May 2008 11

Impact of Various Margins on CRVM Type Reserves

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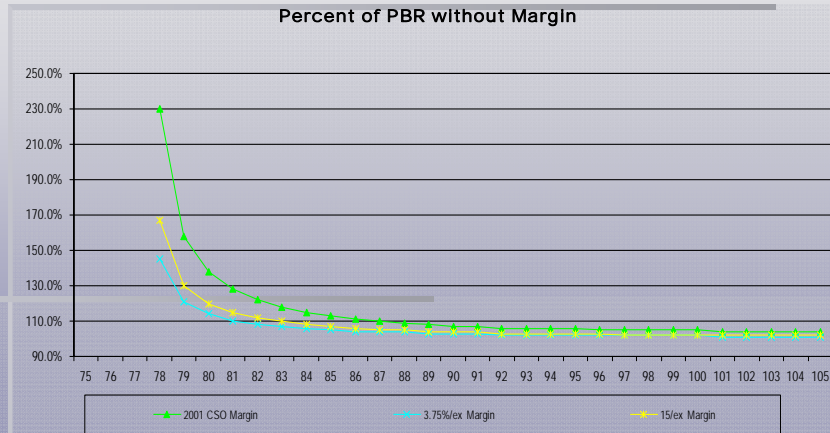


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Preferred Mortality Update
May 2008 12

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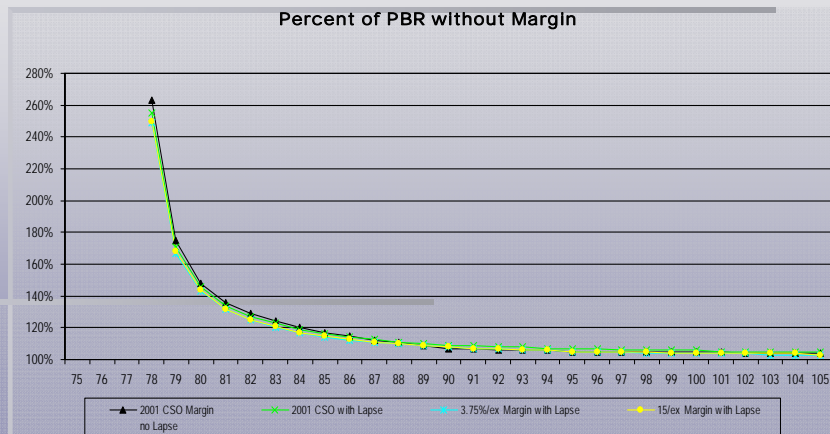


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Preferred Mortality Update
May 2008 13

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Preferred Mortality Update
May 2008 14

Scenario:
Margin

MNS75UCS0D121P121M15
15

Age	Duration	Gross Premium	CRVM		Death Benefits	Experience Reserves	Reserve With Margin
			Net Premium No Lapse	Net Premium with Lapse			
75	0	58,948	7,429	7,280	1,000,000	-	-
76	1	58,948	57,141	54,121	1,000,000	-	-
77	2	58,948	57,141	54,121	1,000,000	-	15,618
78	3	58,948	57,141	54,121	1,000,000	37,249	62,039
79	4	58,948	57,141	54,121	1,000,000	83,311	108,546
80	5	58,948	57,141	54,121	1,000,000	129,669	155,239
81	6	58,948	57,141	54,121	1,000,000	174,386	199,908
82	7	58,948	57,141	54,121	1,000,000	218,851	244,203
83	8	58,948	57,141	54,121	1,000,000	263,134	288,193
84	9	58,948	57,141	54,121	1,000,000	307,345	331,989
85	10	58,948	57,141	54,121	1,000,000	351,671	375,774
86	11	58,948	57,141	54,121	1,000,000	394,116	417,628
87	12	58,948	57,141	54,121	1,000,000	434,760	457,647
88	13	58,948	57,141	54,121	1,000,000	473,647	495,896
89	14	58,948	57,141	54,121	1,000,000	510,697	532,326
90	15	58,948	57,141	54,121	1,000,000	545,837	566,906
91	16	58,948	57,141	54,121	1,000,000	572,253	592,596
92	17	58,948	57,141	54,121	1,000,000	596,505	616,153
93	18	58,948	57,141	54,121	1,000,000	618,578	637,572
94	19	58,948	57,141	54,121	1,000,000	638,404	656,799
95	20	58,948	57,141	54,121	1,000,000	656,386	674,226
96	21	58,948	57,141	54,121	1,000,000	673,620	690,911
97	22	58,948	57,141	54,121	1,000,000	689,899	706,656
98	23	58,948	57,141	54,121	1,000,000	705,739	721,958
99	24	58,948	57,141	54,121	1,000,000	720,455	736,160
100	25	58,948	57,141	54,121	1,000,000	733,337	748,588
101	26	58,948	57,141	54,121	1,000,000	744,309	759,172
102	27	58,948	57,141	54,121	1,000,000	753,421	767,962
103	28	58,948	57,141	54,121	1,000,000	760,781	775,066
104	29	58,948	57,141	54,121	1,000,000	766,744	780,823
105	30	58,948	57,141	54,121	1,000,000	771,712	785,619
106	31	58,948	57,141	54,121	1,000,000	775,776	789,541
107	32	58,948	57,141	54,121	1,000,000	778,898	792,553
108	33	58,948	57,141	54,121	1,000,000	780,692	794,284
109	34	58,948	57,141	54,121	1,000,000	781,919	795,467
110	35	58,948	57,141	54,121	1,000,000	782,557	796,082
111	36	58,948	57,141	54,121	1,000,000	782,557	796,082
112	37	58,948	57,141	54,121	1,000,000	782,557	796,082
113	38	58,948	57,141	54,121	1,000,000	782,557	796,082
114	39	58,948	57,141	54,121	1,000,000	782,557	796,082
115	40	58,948	57,141	54,121	1,000,000	782,557	796,082
116	41	58,948	57,141	54,121	1,000,000	782,557	796,082
117	42	58,948	57,141	54,121	1,000,000	782,557	796,082
118	43	58,948	57,141	54,121	1,000,000	782,557	796,082
119	44	58,948	57,141	54,121	1,000,000	782,557	796,082
120	45	58,948	57,141	54,121	1,000,000	782,557	796,082
121	46	58,948	57,141	54,121	1,000,000	782,557	796,082

Scenario:
Margin

MNS75UCS0D121P121M15
15

Age	Duration	Gross Premium	CRVM		Death Benefits	Experience Reserves	Reserve With Margin
			Net Premium No Lapse	Net Premium with Lapse			
122	47	58,948	57,141	54,121	1,000,000	782,557	796,082
123	48	58,948	57,141	54,121	1,000,000	782,557	796,082
124	49	58,948	57,141	54,121	1,000,000	782,557	796,082
125	50	58,948	57,141	54,121	1,000,000	782,557	796,082
126	51	58,948	57,141	54,121	1,000,000	782,557	796,082
127	52	58,948	57,141	54,121	1,000,000	782,557	796,082
128	53	58,948	57,141	54,121	1,000,000	782,557	796,082
129	54	58,948	57,141	54,121	1,000,000	782,557	796,082
130	55	58,948	57,141	54,121	1,000,000	782,557	796,082
131	56	58,948	57,141	54,121	1,000,000	782,557	796,082
132	57	58,948	57,141	54,121	1,000,000	782,557	796,082
133	58	58,948	57,141	54,121	1,000,000	782,557	796,082
134	59	58,948	57,141	54,121	1,000,000	782,557	796,082
135	60	58,948	57,141	54,121	1,000,000	782,557	796,082
136	61	58,948	57,141	54,121	1,000,000	782,557	796,082
137	62	58,948	57,141	54,121	1,000,000	782,557	796,082
138	63	58,948	57,141	54,121	1,000,000	782,557	796,082
139	64	58,948	57,141	54,121	1,000,000	782,557	796,082
140	65	58,948	57,141	54,121	1,000,000	782,557	796,082
141	66	58,948	57,141	54,121	1,000,000	782,557	796,082
142	67	58,948	57,141	54,121	1,000,000	782,557	796,082
143	68	58,948	57,141	54,121	1,000,000	782,557	796,082
144	69	58,948	57,141	54,121	1,000,000	782,557	796,082
145	70	58,948	57,141	54,121	1,000,000	782,557	796,082
146	71	58,948	57,141	54,121	1,000,000	782,557	796,082
147	72	58,948	57,141	54,121	1,000,000	782,557	796,082
148	73	58,948	57,141	54,121	1,000,000	782,557	796,082
149	74	58,948	57,141	54,121	1,000,000	782,557	796,082
150	75	58,948	57,141	54,121	1,000,000	782,557	796,082
151	76	58,948	57,141	54,121	1,000,000	782,557	796,082
152	77	58,948	57,141	54,121	1,000,000	782,557	796,082
153	78	58,948	57,141	54,121	1,000,000	782,557	796,082
154	79	58,948	57,141	54,121	1,000,000	782,557	796,082
155	80	58,948	57,141	54,121	1,000,000	782,557	796,082
156	81	58,948	57,141	54,121	1,000,000	782,557	796,082
157	82	58,948	57,141	54,121	1,000,000	782,557	796,082
158	83	58,948	57,141	54,121	1,000,000	782,557	796,082

Slide 2 Data: 45 PBR - Reserves

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin	3.75%/ex Margin	15/ex Margin
45	0	10,439	-	11,708	1,497	6,845
46	1	10,439	-	11,573	961	6,374
47	2	10,439	-	21,910	10,886	16,365
48	3	10,439	4,691	32,733	21,287	26,833
49	4	10,439	14,684	44,097	32,220	37,834
50	5	10,439	25,245	56,051	43,734	49,416
51	6	10,439	36,047	67,935	55,303	60,993
52	7	10,439	47,355	80,313	67,370	73,064
53	8	10,439	59,177	93,187	79,938	85,632
54	9	10,439	71,512	106,554	93,006	98,696
55	10	10,439	84,353	120,405	106,564	112,245
56	11	10,439	97,711	134,747	120,621	126,290
57	12	10,439	111,601	149,593	135,190	140,843
58	13	10,439	126,042	164,955	150,285	155,918
59	14	10,439	141,061	180,858	165,933	171,540
60	15	10,439	156,693	197,331	182,163	187,740
61	16	10,439	172,980	214,411	199,015	204,556
62	17	10,439	189,966	232,134	216,526	222,026
63	18	10,439	207,678	250,523	234,721	240,175
64	19	10,439	226,137	269,593	253,616	259,017
65	20	10,439	245,338	289,334	273,202	278,545
66	21	10,439	265,245	309,710	293,441	298,722
67	22	10,439	285,795	330,656	314,270	319,483
68	23	10,439	306,901	352,090	335,602	340,744
69	24	10,439	328,451	373,905	357,330	362,399
70	25	10,439	350,324	395,989	379,335	384,330
71	26	10,439	372,405	418,238	401,509	406,431
72	27	10,439	395,081	441,016	424,225	429,073
73	28	10,439	418,354	464,327	447,482	452,256
74	29	10,439	442,239	488,190	471,295	475,996
75	30	10,439	466,751	512,626	495,680	500,312
76	31	10,439	486,734	531,994	515,189	519,701
77	32	10,439	506,715	551,288	534,645	539,036
78	33	10,439	526,656	570,472	554,012	558,279
79	34	10,439	546,526	589,519	573,262	577,404
80	35	10,439	566,305	608,410	592,376	596,390
81	36	10,439	585,975	627,128	611,337	615,222
82	37	10,439	605,438	645,584	630,052	633,809
83	38	10,439	624,680	663,768	648,512	652,140
84	39	10,439	643,706	681,684	666,720	670,218
85	40	10,439	662,528	699,344	684,689	688,057
86	41	10,439	680,894	716,524	702,184	705,425
87	42	10,439	698,727	733,157	719,135	722,252
88	43	10,439	715,954	749,182	735,476	738,472
89	44	10,439	732,416	764,461	751,062	753,942
90	45	10,439	747,967	778,870	765,761	768,532
91	46	10,439	762,626	792,431	779,593	782,262

Slide 2 Data: 45 PBR - Reserves

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin	3.75%/ex Margin	15/ex Margin
92	47	10,439	776,085	804,877	792,275	794,852
93	48	10,439	788,334	816,208	803,805	806,300
94	49	10,439	799,336	826,399	814,153	816,575
95	50	10,439	809,315	835,654	823,530	825,890
96	51	10,439	818,878	844,519	832,507	834,807
97	52	10,439	827,912	852,894	840,977	843,222
98	53	10,439	836,703	861,036	849,206	851,400
99	54	10,439	844,869	868,610	856,842	858,990
100	55	10,439	852,018	875,270	863,521	865,632
101	56	10,439	858,107	880,982	869,207	871,289
102	57	10,439	863,163	885,770	873,926	875,987
103	58	10,439	867,248	889,688	877,737	879,783
104	59	10,439	870,557	892,910	880,825	882,860
105	60	10,439	873,314	895,634	883,396	885,424
106	61	10,439	875,569	897,907	885,498	887,520
107	62	10,439	877,302	899,708	887,112	889,130
108	63	10,439	878,297	900,840	888,039	890,055
109	64	10,439	878,978	901,687	888,673	890,687
110	65	10,439	879,332	902,238	889,002	891,016
111	66	10,439	879,332	902,465	889,002	891,016
112	67	10,439	879,332	902,694	889,002	891,016
113	68	10,439	879,332	902,925	889,002	891,016
114	69	10,439	879,332	903,156	889,002	891,016
115	70	10,439	879,332	903,388	889,002	891,016
116	71	10,439	879,332	903,621	889,002	891,016
117	72	10,439	879,332	903,856	889,002	891,016
118	73	10,439	879,332	904,091	889,002	891,016
119	74	10,439	879,332	904,328	889,002	891,016
120	75	10,439	879,332	904,565	889,002	891,016
121	76	10,439	879,332	904,803	889,002	891,016
122	77	10,439	879,332	905,043	889,002	891,016
123	78	10,439	879,332	905,283	889,002	891,016
124	79	10,439	879,332	905,524	889,002	891,016
125	80	10,439	879,332	905,766	889,002	891,016
126	81	10,439	879,332	906,009	889,002	891,016
127	82	10,439	879,332	906,252	889,002	891,016
128	83	10,439	879,332	906,496	889,002	891,016

Slide 3: Data- 45 CRVM - with Lapse

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
45	0	10,439	-	-	-	-	-
46	1	10,439	-	-	-	-	-
47	2	10,439	-	12,787	11,347	10,912	10,981
48	3	10,439	4,691	25,887	23,188	22,311	22,450
49	4	10,439	14,684	39,335	35,576	34,252	34,458
50	5	10,439	25,245	53,160	48,559	46,780	47,055
51	6	10,439	36,047	67,388	61,541	59,328	59,665
52	7	10,439	47,355	82,023	75,012	72,366	72,763
53	8	10,439	59,177	97,057	88,973	85,897	86,353
54	9	10,439	71,512	112,477	103,419	99,916	100,428
55	10	10,439	84,353	128,262	118,337	114,411	114,977
56	11	10,439	97,711	144,409	133,733	129,389	130,008
57	12	10,439	111,601	160,917	149,617	144,860	145,530
58	13	10,439	126,042	177,789	165,998	160,836	161,554
59	14	10,439	141,061	195,036	182,900	177,340	178,105
60	15	10,439	156,693	212,670	200,346	194,399	195,207
61	16	10,439	172,980	230,715	218,373	212,049	212,898
62	17	10,439	189,966	249,189	237,012	230,323	231,211
63	18	10,439	207,678	268,097	256,282	249,242	250,166
64	19	10,439	226,137	287,434	276,195	268,817	269,775
65	20	10,439	245,338	307,169	296,736	289,037	290,025
66	21	10,439	265,245	327,244	317,866	309,860	310,876
67	22	10,439	285,795	347,575	339,518	331,221	332,264
68	23	10,439	306,901	368,055	361,606	353,033	354,100
69	24	10,439	328,451	388,555	384,025	375,190	376,278
70	25	10,439	350,324	408,936	406,662	397,574	398,684
71	26	10,439	372,405	429,064	429,414	420,083	421,213
72	27	10,439	395,081	449,261	452,639	443,075	444,225
73	28	10,439	418,354	469,486	476,339	466,552	467,722
74	29	10,439	442,239	489,702	500,530	490,524	491,717
75	30	10,439	466,751	509,862	525,232	515,007	516,224
76	31	10,439	486,734	529,931	544,671	534,358	535,582
77	32	10,439	506,715	549,872	563,987	553,606	554,834
78	33	10,439	526,656	569,649	583,144	572,717	573,946
79	34	10,439	546,526	589,236	602,116	591,663	592,893
80	35	10,439	566,305	608,613	620,886	610,428	611,655
81	36	10,439	585,975	627,766	639,438	628,995	630,218
82	37	10,439	605,438	646,607	657,688	647,279	648,496
83	38	10,439	624,680	665,126	675,627	665,270	666,478
84	39	10,439	643,706	683,328	693,258	682,971	684,171
85	40	10,439	662,528	701,228	710,597	700,399	701,587
86	41	10,439	680,894	718,603	727,427	717,329	718,505
87	42	10,439	698,727	735,391	743,688	733,698	734,862
88	43	10,439	715,954	751,530	759,322	749,445	750,597
89	44	10,439	732,416	766,890	774,200	764,435	765,576
90	45	10,439	747,967	781,350	788,206	778,548	779,677
91	46	10,439	762,626	794,936	801,366	791,805	792,925

Slide 3: Data- 45 CRVM - with Lapse

Age	Duration	Gross Premium	Experience Reserve	2001 CSO	2001 CSO	3.75%/ex	15/ex
				Margin no Lapse	Margin with Lapse	Margin with Lapse	Margin with Lapse
92	47	10,439	776,085	807,388	813,427	803,943	805,056
93	48	10,439	788,334	818,710	824,395	814,966	816,072
94	49	10,439	799,336	828,883	834,249	824,849	825,953
95	50	10,439	809,315	838,115	843,191	833,798	834,901
96	51	10,439	818,878	846,944	851,744	842,353	843,456
97	52	10,439	827,912	855,277	859,815	850,415	851,520
98	53	10,439	836,703	863,365	867,650	858,236	859,345
99	54	10,439	844,869	870,880	874,929	865,484	866,598
100	55	10,439	852,018	877,483	881,325	871,818	872,939
101	56	10,439	858,107	883,140	886,805	877,205	878,335
102	57	10,439	863,163	887,880	891,395	881,674	882,814
103	58	10,439	867,248	891,756	895,150	885,282	886,431
104	59	10,439	870,557	894,942	898,237	888,203	889,362
105	60	10,439	873,314	897,636	900,846	890,635	891,802
106	61	10,439	875,569	899,881	903,021	892,621	893,797
107	62	10,439	877,302	901,660	904,744	894,144	895,327
108	63	10,439	878,297	902,778	905,826	895,020	896,207
109	64	10,439	878,978	903,614	906,636	895,618	896,807
110	65	10,439	879,332	904,157	907,162	895,928	897,119
111	66	10,439	879,332	904,382	907,380	895,928	897,119
112	67	10,439	879,332	904,609	907,600	895,928	897,119
113	68	10,439	879,332	904,836	907,820	895,928	897,119
114	69	10,439	879,332	905,065	908,042	895,928	897,119
115	70	10,439	879,332	905,295	908,264	895,928	897,119
116	71	10,439	879,332	905,525	908,488	895,928	897,119
117	72	10,439	879,332	905,757	908,712	895,928	897,119
118	73	10,439	879,332	905,990	908,938	895,928	897,119
119	74	10,439	879,332	906,224	909,164	895,928	897,119
120	75	10,439	879,332	906,458	909,392	895,928	897,119
121	76	10,439	879,332	906,694	909,620	895,928	897,119
122	77	10,439	879,332	906,931	909,849	895,928	897,119
123	78	10,439	879,332	907,168	910,079	895,928	897,119
124	79	10,439	879,332	907,406	910,310	895,928	897,119
125	80	10,439	879,332	907,645	910,541	895,928	897,119
126	81	10,439	879,332	907,885	910,774	895,928	897,119
127	82	10,439	879,332	908,126	911,007	895,928	897,119
128	83	10,439	879,332	908,368	911,241	895,928	897,119

Slide 4 Data: 75 PBR - Reserves

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin	3.75%/ex Margin	15/ex Margin
75	0	58,948	-	1,722	-	-
76	1	58,948	-	-	-	-
77	2	58,948	-	39,100	7,261	15,618
78	3	58,948	37,249	85,503	53,878	62,039
79	4	58,948	83,311	131,968	100,582	108,546
80	5	58,948	129,669	178,602	147,471	155,239
81	6	58,948	174,386	222,928	192,421	199,908
82	7	58,948	218,851	266,839	237,000	244,203
83	8	58,948	263,134	310,404	281,278	288,193
84	9	58,948	307,345	353,731	325,365	331,989
85	10	58,948	351,671	397,002	369,444	375,774
86	11	58,948	394,116	438,362	411,577	417,628
87	12	58,948	434,760	477,918	451,856	457,647
88	13	58,948	473,647	515,753	490,343	495,896
89	14	58,948	510,697	551,856	526,979	532,326
90	15	58,948	545,837	586,248	561,721	566,906
91	16	58,948	572,253	611,622	587,602	592,596
92	17	58,948	596,505	634,910	611,331	616,153
93	18	58,948	618,578	656,111	632,904	637,572
94	19	58,948	638,404	675,180	652,266	656,799
95	20	58,948	656,386	692,497	669,812	674,226
96	21	58,948	673,620	709,083	686,608	690,911
97	22	58,948	689,899	724,753	702,455	706,656
98	23	58,948	705,739	739,987	717,853	721,958
99	24	58,948	720,455	754,159	732,141	736,160
100	25	58,948	733,337	766,621	744,638	748,588
101	26	58,948	744,309	777,309	755,276	759,172
102	27	58,948	753,421	786,267	764,106	767,962
103	28	58,948	760,781	793,597	771,237	775,066
104	29	58,948	766,744	799,625	777,015	780,823
105	30	58,948	771,712	804,724	781,825	785,619
106	31	58,948	775,776	808,976	785,758	789,541
107	32	58,948	778,898	812,346	788,777	792,553
108	33	58,948	780,692	814,465	790,512	794,284
109	34	58,948	781,919	816,050	791,698	795,467
110	35	58,948	782,557	817,079	792,313	796,082
111	36	58,948	782,557	817,505	792,313	796,082
112	37	58,948	782,557	817,934	792,313	796,082
113	38	58,948	782,557	818,364	792,313	796,082
114	39	58,948	782,557	818,797	792,313	796,082
115	40	58,948	782,557	819,232	792,313	796,082
116	41	58,948	782,557	819,668	792,313	796,082
117	42	58,948	782,557	820,107	792,313	796,082
118	43	58,948	782,557	820,547	792,313	796,082
119	44	58,948	782,557	820,990	792,313	796,082
120	45	58,948	782,557	821,434	792,313	796,082
121	46	58,948	782,557	821,880	792,313	796,082

Slide 4 Data: 75 PBR - Reserves

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin	3.75%/ex Margin	15/ex Margin
122	47	58,948	782,557	822,328	792,313	796,082
123	48	58,948	782,557	822,777	792,313	796,082
124	49	58,948	782,557	823,228	792,313	796,082
125	50	58,948	782,557	823,681	792,313	796,082
126	51	58,948	782,557	824,135	792,313	796,082
127	52	58,948	782,557	824,590	792,313	796,082
128	53	58,948	782,557	825,048	792,313	796,082
129	54	58,948	782,557	825,506	792,313	796,082
130	55	58,948	782,557	825,966	792,313	796,082
131	56	58,948	782,557	826,428	792,313	796,082
132	57	58,948	782,557	826,890	792,313	796,082
133	58	58,948	782,557	827,354	792,313	796,082
134	59	58,948	782,557	827,819	792,313	796,082
135	60	58,948	782,557	828,286	792,313	796,082
136	61	58,948	782,557	828,753	792,313	796,082
137	62	58,948	782,557	829,222	792,313	796,082
138	63	58,948	782,557	829,692	792,313	796,082
139	64	58,948	782,557	830,162	792,313	796,082
140	65	58,948	782,557	830,634	792,313	796,082
141	66	58,948	782,557	831,107	792,313	796,082
142	67	58,948	782,557	831,580	792,313	796,082
143	68	58,948	782,557	832,055	792,313	796,082
144	69	58,948	782,557	832,530	792,313	796,082
145	70	58,948	782,557	833,006	792,313	796,082
146	71	58,948	782,557	833,483	792,313	796,082
147	72	58,948	782,557	833,961	792,313	796,082
148	73	58,948	782,557	834,439	792,313	796,082
149	74	58,948	782,557	834,918	792,313	796,082
150	75	58,948	782,557	835,398	792,313	796,082
151	76	58,948	782,557	835,878	792,313	796,082
152	77	58,948	782,557	836,359	792,313	796,082
153	78	58,948	782,557	836,840	792,313	796,082
154	79	58,948	782,557	837,322	792,313	796,082
155	80	58,948	782,557	837,804	792,313	796,082
156	81	58,948	782,557	838,287	792,313	796,082
157	82	58,948	782,557	838,770	792,313	796,082
158	83	58,948	782,557	839,254	792,313	796,082

Slide 5: Data- 75 CRVM - with Lapse

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
75	-	58,948	-	-	-	-	-
76	1	58,948	-	-	-	-	-
77	2	58,948	-	49,567	47,513	46,516	46,633
78	3	58,948	37,249	98,075	94,865	92,919	93,145
79	4	58,948	83,311	145,586	142,160	139,310	139,641
80	5	58,948	129,669	192,147	189,505	185,792	186,224
81	6	58,948	174,386	237,809	234,308	229,859	230,371
82	7	58,948	218,851	282,537	278,575	273,452	274,037
83	8	58,948	263,134	326,382	322,377	316,642	317,293
84	9	58,948	307,345	369,420	365,824	359,537	360,247
85	10	58,948	351,671	411,785	409,097	402,314	403,079
86	11	58,948	394,116	451,597	450,380	443,143	443,957
87	12	58,948	434,760	488,884	489,792	482,129	482,991
88	13	58,948	473,647	523,599	527,432	519,355	520,264
89	14	58,948	510,697	555,514	563,304	554,793	555,755
90	15	58,948	545,837	584,310	597,451	588,437	589,467
91	16	58,948	572,253	610,139	622,464	613,075	614,151
92	17	58,948	596,505	633,812	645,388	635,634	636,755
93	18	58,948	618,578	655,338	666,234	656,119	657,283
94	19	58,948	638,404	674,679	684,963	674,487	675,693
95	20	58,948	656,386	692,229	701,959	691,118	692,367
96	21	58,948	673,620	709,016	718,215	707,017	708,308
97	22	58,948	689,899	724,857	733,555	722,000	723,334
98	23	58,948	705,739	740,235	748,447	736,536	737,914
99	24	58,948	720,455	754,522	762,283	750,006	751,429
100	25	58,948	733,337	767,074	774,438	761,777	763,243
101	26	58,948	744,309	777,830	784,854	771,789	773,298
102	27	58,948	753,421	786,841	793,579	780,094	781,643
103	28	58,948	760,781	794,210	800,715	786,799	788,384
104	29	58,948	766,744	800,268	806,582	792,229	793,846
105	30	58,948	771,712	805,389	811,541	796,747	798,393
106	31	58,948	775,776	809,658	815,675	800,439	802,109
107	32	58,948	778,898	813,039	818,949	803,271	804,960
108	33	58,948	780,692	815,164	821,008	804,898	806,599
109	34	58,948	781,919	816,754	822,547	806,009	807,719
110	35	58,948	782,557	817,786	823,546	806,585	808,299
111	36	58,948	782,557	818,214	823,961	806,585	808,299
112	37	58,948	782,557	818,645	824,378	806,585	808,299
113	38	58,948	782,557	819,078	824,797	806,585	808,299
114	39	58,948	782,557	819,512	825,218	806,585	808,299
115	40	58,948	782,557	819,949	825,641	806,585	808,299
116	41	58,948	782,557	820,388	826,066	806,585	808,299
117	42	58,948	782,557	820,829	826,493	806,585	808,299
118	43	58,948	782,557	821,271	826,921	806,585	808,299
119	44	58,948	782,557	821,716	827,352	806,585	808,299
120	45	58,948	782,557	822,162	827,784	806,585	808,299
121	46	58,948	782,557	822,610	828,218	806,585	808,299

Slide 5: Data- 75 CRVM - with Lapse

Age	Duration	Gross Premium	Experience Reserve	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
122	47	58,948	782,557	823,059	828,653	806,585	808,299
123	48	58,948	782,557	823,511	829,090	806,585	808,299
124	49	58,948	782,557	823,964	829,529	806,585	808,299
125	50	58,948	782,557	824,418	829,969	806,585	808,299
126	51	58,948	782,557	824,875	830,411	806,585	808,299
127	52	58,948	782,557	825,332	830,854	806,585	808,299
128	53	58,948	782,557	825,791	831,299	806,585	808,299
129	54	58,948	782,557	826,252	831,745	806,585	808,299
130	55	58,948	782,557	826,714	832,192	806,585	808,299
131	56	58,948	782,557	827,177	832,641	806,585	808,299
132	57	58,948	782,557	827,642	833,090	806,585	808,299
133	58	58,948	782,557	828,107	833,542	806,585	808,299
134	59	58,948	782,557	828,574	833,994	806,585	808,299
135	60	58,948	782,557	829,043	834,447	806,585	808,299
136	61	58,948	782,557	829,512	834,902	806,585	808,299
137	62	58,948	782,557	829,982	835,357	806,585	808,299
138	63	58,948	782,557	830,454	835,814	806,585	808,299
139	64	58,948	782,557	830,926	836,271	806,585	808,299
140	65	58,948	782,557	831,400	836,730	806,585	808,299
141	66	58,948	782,557	831,874	837,189	806,585	808,299
142	67	58,948	782,557	832,350	837,650	806,585	808,299
143	68	58,948	782,557	832,826	838,111	806,585	808,299
144	69	58,948	782,557	833,303	838,573	806,585	808,299
145	70	58,948	782,557	833,780	839,035	806,585	808,299
146	71	58,948	782,557	834,259	839,499	806,585	808,299
147	72	58,948	782,557	834,738	839,963	806,585	808,299
148	73	58,948	782,557	835,218	840,428	806,585	808,299
149	74	58,948	782,557	835,699	840,893	806,585	808,299
150	75	58,948	782,557	836,180	841,359	806,585	808,299
151	76	58,948	782,557	836,662	841,825	806,585	808,299
152	77	58,948	782,557	837,144	842,292	806,585	808,299
153	78	58,948	782,557	837,627	842,760	806,585	808,299
154	79	58,948	782,557	838,110	843,228	806,585	808,299
155	80	58,948	782,557	838,594	843,696	806,585	808,299
156	81	58,948	782,557	839,078	844,165	806,585	808,299
157	82	58,948	782,557	839,562	844,634	806,585	808,299
158	83	58,948	782,557	840,047	845,104	806,585	808,299

Slide 6 Data: 45 PBR - % of PBR No Margin

Age	Duration	Gross 2001 CSO Premium	3.75%/ex Margin	15/ex Margin
45	0	10,439	na	na
46	1	10,439	na	na
47	2	10,439	na	na
48	3	10,439	698%	454%
49	4	10,439	300%	219%
50	5	10,439	222%	173%
51	6	10,439	188%	153%
52	7	10,439	170%	142%
53	8	10,439	157%	135%
54	9	10,439	149%	130%
55	10	10,439	143%	126%
56	11	10,439	138%	123%
57	12	10,439	134%	121%
58	13	10,439	131%	119%
59	14	10,439	128%	118%
60	15	10,439	126%	116%
61	16	10,439	124%	115%
62	17	10,439	122%	114%
63	18	10,439	121%	113%
64	19	10,439	119%	112%
65	20	10,439	118%	111%
66	21	10,439	117%	111%
67	22	10,439	116%	110%
68	23	10,439	115%	109%
69	24	10,439	114%	109%
70	25	10,439	113%	108%
71	26	10,439	112%	108%
72	27	10,439	112%	107%
73	28	10,439	111%	107%
74	29	10,439	110%	107%
75	30	10,439	110%	106%
76	31	10,439	109%	106%
77	32	10,439	109%	106%
78	33	10,439	108%	105%
79	34	10,439	108%	105%
80	35	10,439	107%	105%
81	36	10,439	107%	104%
82	37	10,439	107%	104%
83	38	10,439	106%	104%
84	39	10,439	106%	104%
85	40	10,439	106%	103%
86	41	10,439	105%	103%
87	42	10,439	105%	103%
88	43	10,439	105%	103%
89	44	10,439	104%	103%
90	45	10,439	104%	102%
91	46	10,439	104%	102%

Slide 6 Data: 45 PBR - % of PBR No Margin

Age	Duration	Gross 2001 CSO Premium	Margin	3.75%/ex Margin	15/ex Margin
92	47	10,439	104%	102%	102%
93	48	10,439	104%	102%	102%
94	49	10,439	103%	102%	102%
95	50	10,439	103%	102%	102%
96	51	10,439	103%	102%	102%
97	52	10,439	103%	102%	102%
98	53	10,439	103%	101%	102%
99	54	10,439	103%	101%	102%
100	55	10,439	103%	101%	102%
101	56	10,439	103%	101%	102%
102	57	10,439	103%	101%	101%
103	58	10,439	103%	101%	101%
104	59	10,439	103%	101%	101%
105	60	10,439	103%	101%	101%
106	61	10,439	103%	101%	101%
107	62	10,439	103%	101%	101%
108	63	10,439	103%	101%	101%
109	64	10,439	103%	101%	101%
110	65	10,439	103%	101%	101%
111	66	10,439	103%	101%	101%
112	67	10,439	103%	101%	101%
113	68	10,439	103%	101%	101%
114	69	10,439	103%	101%	101%
115	70	10,439	103%	101%	101%
116	71	10,439	103%	101%	101%
117	72	10,439	103%	101%	101%
118	73	10,439	103%	101%	101%
119	74	10,439	103%	101%	101%
120	75	10,439	103%	101%	101%
121	76	10,439	103%	101%	101%
122	77	10,439	103%	101%	101%
123	78	10,439	103%	101%	101%
124	79	10,439	103%	101%	101%
125	80	10,439	103%	101%	101%
126	81	10,439	103%	101%	101%
127	82	10,439	103%	101%	101%
128	83	10,439	103%	101%	101%

Slide 7: Data- 45 CRVM - % of PBR No Margin

Age	Duration	2001 CSO Gross Premium	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
45	0	10,439	na	na	na	na
46	1	10,439	na	na	na	na
47	2	10,439	na	na	na	na
48	3	10,439	552%	494%	476%	479%
49	4	10,439	268%	242%	233%	235%
50	5	10,439	211%	192%	185%	186%
51	6	10,439	187%	171%	165%	166%
52	7	10,439	173%	158%	153%	154%
53	8	10,439	164%	150%	145%	146%
54	9	10,439	157%	145%	140%	140%
55	10	10,439	152%	140%	136%	136%
56	11	10,439	148%	137%	132%	133%
57	12	10,439	144%	134%	130%	130%
58	13	10,439	141%	132%	128%	128%
59	14	10,439	138%	130%	126%	126%
60	15	10,439	136%	128%	124%	125%
61	16	10,439	133%	126%	123%	123%
62	17	10,439	131%	125%	121%	122%
63	18	10,439	129%	123%	120%	120%
64	19	10,439	127%	122%	119%	119%
65	20	10,439	125%	121%	118%	118%
66	21	10,439	123%	120%	117%	117%
67	22	10,439	122%	119%	116%	116%
68	23	10,439	120%	118%	115%	115%
69	24	10,439	118%	117%	114%	115%
70	25	10,439	117%	116%	113%	114%
71	26	10,439	115%	115%	113%	113%
72	27	10,439	114%	115%	112%	112%
73	28	10,439	112%	114%	112%	112%
74	29	10,439	111%	113%	111%	111%
75	30	10,439	109%	113%	110%	111%
76	31	10,439	109%	112%	110%	110%
77	32	10,439	109%	111%	109%	109%
78	33	10,439	108%	111%	109%	109%
79	34	10,439	108%	110%	108%	108%
80	35	10,439	107%	110%	108%	108%
81	36	10,439	107%	109%	107%	108%
82	37	10,439	107%	109%	107%	107%
83	38	10,439	106%	108%	106%	107%
84	39	10,439	106%	108%	106%	106%
85	40	10,439	106%	107%	106%	106%
86	41	10,439	106%	107%	105%	106%
87	42	10,439	105%	106%	105%	105%
88	43	10,439	105%	106%	105%	105%
89	44	10,439	105%	106%	104%	105%
90	45	10,439	104%	105%	104%	104%
91	46	10,439	104%	105%	104%	104%

Slide 7: Data- 45 CRVM - % of PBR No Margin

Age	Duration	2001 CSO Gross Premium	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
92	47	10,439	104%	105%	104%	104%
93	48	10,439	104%	105%	103%	104%
94	49	10,439	104%	104%	103%	103%
95	50	10,439	104%	104%	103%	103%
96	51	10,439	103%	104%	103%	103%
97	52	10,439	103%	104%	103%	103%
98	53	10,439	103%	104%	103%	103%
99	54	10,439	103%	104%	102%	103%
100	55	10,439	103%	103%	102%	102%
101	56	10,439	103%	103%	102%	102%
102	57	10,439	103%	103%	102%	102%
103	58	10,439	103%	103%	102%	102%
104	59	10,439	103%	103%	102%	102%
105	60	10,439	103%	103%	102%	102%
106	61	10,439	103%	103%	102%	102%
107	62	10,439	103%	103%	102%	102%
108	63	10,439	103%	103%	102%	102%
109	64	10,439	103%	103%	102%	102%
110	65	10,439	103%	103%	102%	102%
111	66	10,439	103%	103%	102%	102%
112	67	10,439	103%	103%	102%	102%
113	68	10,439	103%	103%	102%	102%
114	69	10,439	103%	103%	102%	102%
115	70	10,439	103%	103%	102%	102%
116	71	10,439	103%	103%	102%	102%
117	72	10,439	103%	103%	102%	102%
118	73	10,439	103%	103%	102%	102%
119	74	10,439	103%	103%	102%	102%
120	75	10,439	103%	103%	102%	102%
121	76	10,439	103%	103%	102%	102%
122	77	10,439	103%	103%	102%	102%
123	78	10,439	103%	103%	102%	102%
124	79	10,439	103%	104%	102%	102%
125	80	10,439	103%	104%	102%	102%
126	81	10,439	103%	104%	102%	102%
127	82	10,439	103%	104%	102%	102%
128	83	10,439	103%	104%	102%	102%

Slide 8 Data: 75 PBR - % of PBR No Margin

Age	Duration	Gross 2001 CSO Premium	Margin	3.75%/ex Margin	15/ex Margin
75	0	58,948	na	na	na
76	1	58,948	na	na	na
77	2	58,948	na	na	na
78	3	58,948	230%	145%	167%
79	4	58,948	158%	121%	130%
80	5	58,948	138%	114%	120%
81	6	58,948	128%	110%	115%
82	7	58,948	122%	108%	112%
83	8	58,948	118%	107%	110%
84	9	58,948	115%	106%	108%
85	10	58,948	113%	105%	107%
86	11	58,948	111%	104%	106%
87	12	58,948	110%	104%	105%
88	13	58,948	109%	104%	105%
89	14	58,948	108%	103%	104%
90	15	58,948	107%	103%	104%
91	16	58,948	107%	103%	104%
92	17	58,948	106%	102%	103%
93	18	58,948	106%	102%	103%
94	19	58,948	106%	102%	103%
95	20	58,948	106%	102%	103%
96	21	58,948	105%	102%	103%
97	22	58,948	105%	102%	102%
98	23	58,948	105%	102%	102%
99	24	58,948	105%	102%	102%
100	25	58,948	105%	102%	102%
101	26	58,948	104%	101%	102%
102	27	58,948	104%	101%	102%
103	28	58,948	104%	101%	102%
104	29	58,948	104%	101%	102%
105	30	58,948	104%	101%	102%
106	31	58,948	104%	101%	102%
107	32	58,948	104%	101%	102%
108	33	58,948	104%	101%	102%
109	34	58,948	104%	101%	102%
110	35	58,948	104%	101%	102%
111	36	58,948	104%	101%	102%
112	37	58,948	105%	101%	102%
113	38	58,948	105%	101%	102%
114	39	58,948	105%	101%	102%
115	40	58,948	105%	101%	102%
116	41	58,948	105%	101%	102%
117	42	58,948	105%	101%	102%
118	43	58,948	105%	101%	102%
119	44	58,948	105%	101%	102%
120	45	58,948	105%	101%	102%
121	46	58,948	105%	101%	102%

Slide 8 Data: 75 PBR - % of PBR No Margin

Age	Duration	Gross 2001 CSO Premium	3.75%/ex Margin	15%/ex Margin
122	47	58,948	105%	102%
123	48	58,948	105%	102%
124	49	58,948	105%	102%
125	50	58,948	105%	102%
126	51	58,948	105%	102%
127	52	58,948	105%	102%
128	53	58,948	105%	102%
129	54	58,948	105%	102%
130	55	58,948	106%	102%
131	56	58,948	106%	102%
132	57	58,948	106%	102%
133	58	58,948	106%	102%
134	59	58,948	106%	102%
135	60	58,948	106%	102%
136	61	58,948	106%	102%
137	62	58,948	106%	102%
138	63	58,948	106%	102%
139	64	58,948	106%	102%
140	65	58,948	106%	102%
141	66	58,948	106%	102%
142	67	58,948	106%	102%
143	68	58,948	106%	102%
144	69	58,948	106%	102%
145	70	58,948	106%	102%
146	71	58,948	107%	102%
147	72	58,948	107%	102%
148	73	58,948	107%	102%
149	74	58,948	107%	102%
150	75	58,948	107%	102%
151	76	58,948	107%	102%
152	77	58,948	107%	102%
153	78	58,948	107%	102%
154	79	58,948	107%	102%
155	80	58,948	107%	102%
156	81	58,948	107%	102%
157	82	58,948	107%	102%
158	83	58,948	107%	102%

Slide 9: Data- 75 CRVM -% PBR No Margin

Age	Duration	2001 CSO Gross Premium	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
75	-	58,948	na	na	na	na
76	1	58,948	na	na	na	na
77	2	58,948	na	na	na	na
78	3	58,948	263%	255%	249%	250%
79	4	58,948	175%	171%	167%	168%
80	5	58,948	148%	146%	143%	144%
81	6	58,948	136%	134%	132%	132%
82	7	58,948	129%	127%	125%	125%
83	8	58,948	124%	123%	120%	121%
84	9	58,948	120%	119%	117%	117%
85	10	58,948	117%	116%	114%	115%
86	11	58,948	115%	114%	112%	113%
87	12	58,948	112%	113%	111%	111%
88	13	58,948	111%	111%	110%	110%
89	14	58,948	109%	110%	109%	109%
90	15	58,948	107%	109%	108%	108%
91	16	58,948	107%	109%	107%	107%
92	17	58,948	106%	108%	107%	107%
93	18	58,948	106%	108%	106%	106%
94	19	58,948	106%	107%	106%	106%
95	20	58,948	105%	107%	105%	105%
96	21	58,948	105%	107%	105%	105%
97	22	58,948	105%	106%	105%	105%
98	23	58,948	105%	106%	104%	105%
99	24	58,948	105%	106%	104%	104%
100	25	58,948	105%	106%	104%	104%
101	26	58,948	105%	105%	104%	104%
102	27	58,948	104%	105%	104%	104%
103	28	58,948	104%	105%	103%	104%
104	29	58,948	104%	105%	103%	104%
105	30	58,948	104%	105%	103%	103%
106	31	58,948	104%	105%	103%	103%
107	32	58,948	104%	105%	103%	103%
108	33	58,948	104%	105%	103%	103%
109	34	58,948	104%	105%	103%	103%
110	35	58,948	105%	105%	103%	103%
111	36	58,948	105%	105%	103%	103%
112	37	58,948	105%	105%	103%	103%
113	38	58,948	105%	105%	103%	103%
114	39	58,948	105%	105%	103%	103%
115	40	58,948	105%	106%	103%	103%
116	41	58,948	105%	106%	103%	103%
117	42	58,948	105%	106%	103%	103%
118	43	58,948	105%	106%	103%	103%
119	44	58,948	105%	106%	103%	103%
120	45	58,948	105%	106%	103%	103%
121	46	58,948	105%	106%	103%	103%

Slide 9: Data- 75 CRVM -% PBR No Margin

Age	Duration	2001 CSO Gross Premium	2001 CSO Margin no Lapse	2001 CSO with Lapse	3.75%/ex Margin with Lapse	15/ex Margin with Lapse
122	47	58,948	105%	106%	103%	103%
123	48	58,948	105%	106%	103%	103%
124	49	58,948	105%	106%	103%	103%
125	50	58,948	105%	106%	103%	103%
126	51	58,948	105%	106%	103%	103%
127	52	58,948	105%	106%	103%	103%
128	53	58,948	106%	106%	103%	103%
129	54	58,948	106%	106%	103%	103%
130	55	58,948	106%	106%	103%	103%
131	56	58,948	106%	106%	103%	103%
132	57	58,948	106%	106%	103%	103%
133	58	58,948	106%	107%	103%	103%
134	59	58,948	106%	107%	103%	103%
135	60	58,948	106%	107%	103%	103%
136	61	58,948	106%	107%	103%	103%
137	62	58,948	106%	107%	103%	103%
138	63	58,948	106%	107%	103%	103%
139	64	58,948	106%	107%	103%	103%
140	65	58,948	106%	107%	103%	103%
141	66	58,948	106%	107%	103%	103%
142	67	58,948	106%	107%	103%	103%
143	68	58,948	106%	107%	103%	103%
144	69	58,948	106%	107%	103%	103%
145	70	58,948	107%	107%	103%	103%
146	71	58,948	107%	107%	103%	103%
147	72	58,948	107%	107%	103%	103%
148	73	58,948	107%	107%	103%	103%
149	74	58,948	107%	107%	103%	103%
150	75	58,948	107%	108%	103%	103%
151	76	58,948	107%	108%	103%	103%
152	77	58,948	107%	108%	103%	103%
153	78	58,948	107%	108%	103%	103%
154	79	58,948	107%	108%	103%	103%
155	80	58,948	107%	108%	103%	103%
156	81	58,948	107%	108%	103%	103%
157	82	58,948	107%	108%	103%	103%
158	83	58,948	107%	108%	103%	103%

2008 VBT - Reserve Impact Testing
Purposes: Evaluate different Margin Formulas and Valuation Tables
Analysis of Mortality Margins on Valuation Basic Tables

25-75 2 Genders 2 Smoking Each USC

Scenario Name:
Issue Age:
Gender:
Risk Class:
USC Score:

Assumption
 Set 1
 MNS75UCS0D121P121M15
 75
 M
 NS
 0

Death Benefits:
Coverage Period:

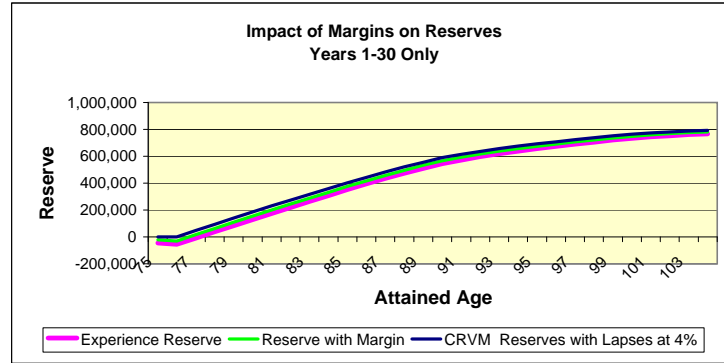
1,000,000
 121

Premium Pay Years:
Experience Level Premium:

121
 58,947.86

Table Name:
Margin Name:

VBT2008.UCS.0.MNS
 15



Calculations

		Mortality and Lapse Information						Lx No Mortality Margin			Lx With Mortality Margin			Interest	
Attained Age	Time	VBT Table For t to t+1	BOY Curtate Life tpx Expectancy	Mortality Margin	Valuation Mortality Rate	Lapse Rates for t to t+1	Lapses	Deaths	Valuation lx	Lapses	Deaths	Valuation lx	Discount Rates for t to t+1	Interest margin	
75	1	6.6500	0.9934	13.9428	1.076	7.7258	2.00%	20,000	6,517	973,483	20,000	7,571	972,429	5.00%	0.50%
76	2	10.1800	0.9832	13.0361	1.151	11.3306	2.00%	19,470	9,712	943,204	19,449	10,798	942,182	5.00%	0.50%
77	3	13.9600	0.9695	12.1702	1.233	15.1925	2.00%	18,864	12,904	910,297	18,844	14,028	909,311	5.00%	0.50%
78	4	18.0200	0.9520	11.3425	1.322	19.3425	2.00%	18,206	16,075	874,835	18,186	17,237	873,888	5.00%	0.50%
79	5	22.4200	0.9307	10.5506	1.422	23.8417	2.00%	17,497	19,222	836,898	17,478	20,418	835,992	5.00%	0.50%
80	6	27.2000	0.9054	9.7926	1.532	28.7318	1.00%	8,369	22,536	804,724	8,360	23,779	803,853	5.00%	0.50%
81	7	32.5400	0.8759	9.0664	1.654	34.1945	1.00%	8,047	25,924	769,435	8,039	27,212	768,602	5.00%	0.50%
82	8	38.4000	0.8423	8.3713	1.792	40.1918	1.00%	7,694	29,251	731,125	7,686	30,583	730,333	5.00%	0.50%
83	9	44.8300	0.8045	7.7056	1.947	46.7766	1.00%	7,311	32,449	689,956	7,303	33,821	689,209	5.00%	0.50%
84	10	51.8500	0.7628	7.0673	2.122	53.9725	1.00%	6,900	35,416	646,190	6,892	36,826	645,490	5.00%	0.50%
85	11	63.0200	0.7147	6.4538	2.324	65.3442	1.00%	6,462	40,316	597,926	6,455	41,757	597,278	5.00%	0.50%
86	12	75.2900	0.6609	5.8879	2.548	77.8376	1.00%	5,979	44,568	545,871	5,973	46,026	545,280	5.00%	0.50%
87	13	88.8700	0.6022	5.3672	2.795	91.6647	1.00%	5,459	48,026	490,875	5,453	49,483	490,344	5.00%	0.50%
88	14	104.1700	0.5395	4.8908	3.067	107.2370	1.00%	4,909	50,623	433,853	4,903	52,057	433,383	5.00%	0.50%
89	15	121.3800	0.4740	4.4595	3.364	124.7436	1.00%	4,339	52,134	375,935	4,334	53,521	375,528	5.00%	0.50%
90	16	139.3300	0.4079	4.0755	3.681	143.0105	0.00%	-	52,379	322,173	-	53,704	321,824	5.00%	0.50%
91	17	156.3400	0.3442	3.7353	4.016	160.3557	0.00%	-	50,368	270,510	-	51,606	270,217	5.00%	0.50%
92	18	174.2800	0.2842	3.4275	4.376	178.6564	0.00%	-	47,145	222,182	-	48,276	221,941	5.00%	0.50%
93	19	193.1000	0.2293	3.1509	4.761	197.8605	0.00%	-	42,903	178,221	-	43,913	178,028	5.00%	0.50%
94	20	211.4600	0.1808	2.9050	5.164	216.6236	0.00%	-	37,687	139,614	-	38,565	139,463	5.00%	0.50%
95	21	227.6700	0.1397	2.6840	5.589	233.2587	0.00%	-	31,786	107,048	-	32,531	106,932	5.00%	0.50%
96	22	245.4800	0.1054	2.4752	6.060	251.5402	0.00%	-	26,278	80,121	-	26,898	80,034	5.00%	0.50%
97	23	262.9500	0.0777	2.2805	6.578	269.5276	0.00%	-	21,068	58,526	-	21,571	58,463	5.00%	0.50%
98	24	283.6500	0.0556	2.0940	7.163	290.8132	0.00%	-	16,601	41,506	-	17,002	41,461	5.00%	0.50%
99	25	306.9900	0.0386	1.9232	7.799	314.7895	0.00%	-	12,742	28,440	-	13,052	28,410	5.00%	0.50%
100	26	330.1500	0.0258	1.7752	8.450	338.6000	0.00%	-	9,390	18,810	-	9,619	18,790	5.00%	0.50%
101	27	352.1200	0.0167	1.6501	9.091	361.2105	0.00%	-	6,624	12,016	-	6,787	12,003	5.00%	0.50%
102	28	372.1800	0.0105	1.5469	9.697	381.8769	0.00%	-	4,472	7,427	-	4,584	7,419	5.00%	0.50%
103	29	389.2600	0.0064	1.4639	10.247	399.5067	0.00%	-	2,891	4,460	-	2,964	4,455	5.00%	0.50%
104	30	403.4000	0.0038	1.3969	10.738	414.1380	0.00%	-	1,799	2,613	-	1,845	2,610	5.00%	0.50%
105	31	415.8500	0.0022	1.3415	11.182	427.0319	0.00%	-	1,087	1,497	-	1,115	1,496	5.00%	0.50%
106	32	426.9000	0.0013	1.2964	11.570	438.4703	0.00%	-	639	841	-	656	840	5.00%	0.50%
107	33	437.1600	0.0007	1.2621	11.885	449.0448	0.00%	-	368	463	-	377	463	5.00%	0.50%
108	34	442.6300	0.0004	1.2424	12.073	454.7033	0.00%	-	205	253	-	210	252	5.00%	0.50%
109	35	446.9200	0.0002	1.2291	12.204	459.1244	0.00%	-	113	137	-	116	136	5.00%	0.50%
110	36	450.0000	0.0001	1.2222	12.273	462.2727	0.00%	-	61	73	-	63	73	5.00%	0.50%
111	37	450.0000	0.0001	1.2222	12.273	462.2727	0.00%	-	33	40	-	34	39	5.00%	0.50%
112	38	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	18	21	-	18	21	5.00%	0.50%
113	39	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	10	11	-	10	11	5.00%	0.50%
114	40	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	5	6	-	5	6	5.00%	0.50%
115	41	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	3	3	-	3	3	5.00%	0.50%
116	42	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	1	2	-	2	2	5.00%	0.50%
117	43	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	1	1	-	1	1	5.00%	0.50%
118	44	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	1	-	0	1	5.00%	0.50%
119	45	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%
120	46	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%
121	47	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%
122	48	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%
123	49	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%
124	50	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	0	5.00%	0.50%

Calculations

		Mortality and Lapse Information						Lx No Mortality Margin			Lx With Mortality Margin			Interest	
Attained Age	Time	VBT Table For t to t+1	BOY Curtate Life Expectancy tpx	Mortality Margin	Valuation Mortality Rate	Lapse Rates for t to t+1	Lapses	Deaths	Valuation lx	Lapses	Deaths	Valuation lx	Discount Rates for t to t+1	Interest margin	
125	51	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
126	52	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
127	53	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
128	54	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
129	55	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
130	56	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
131	57	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
132	58	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
133	59	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
134	60	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
135	61	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
136	62	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
137	63	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
138	64	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
139	65	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
140	66	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
141	67	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
142	68	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
143	69	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
144	70	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
145	71	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
146	72	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
147	73	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
148	74	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
149	75	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
150	76	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
151	77	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
152	78	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
153	79	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
154	80	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
155	81	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
156	82	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
157	83	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
158	84	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
159	85	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
160	86	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
161	87	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
162	88	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
163	89	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
164	90	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
165	91	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
166	92	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
167	93	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
168	94	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
169	95	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
170	96	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
171	97	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
172	98	450.0000	0.0000	1.2222	12.273	462.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
173	99	450.0000	0.0000	1.2222	12.273	462.2728	0.00%	-	0	0	-	0	5.00%	0.50%	
174	100	450.0000	0.0000	1.2222	12.273	462.2728	0.00%	-	0	0	-	0	5.00%	0.50%	
175	101	450.0000	0.0000	1.2222	12.273	462.2728	0.00%	-	0	0	-	0	5.00%	0.50%	

Calculations

		Mortality and Lapse Information						Lx No Mortality Margin			Lx With Mortality Margin			Interest	
Attained Age	Time	VBT Table For t to t+1	BOY Curtate Life tpx Expectancy	Mortality Margin	Valuation Mortality Rate	Lapse Rates for t to t+1	Lapses	Deaths	Valuation lx	Lapses	Deaths	Valuation lx	Discount Rates for t to t+1	Interest margin	
176	102	450.0000	0.0000	1.2222	12.273	462.2729	0.00%	-	0	0	-	0	5.00%	0.50%	
177	103	450.0000	0.0000	1.2222	12.273	462.2730	0.00%	-	0	0	-	0	5.00%	0.50%	
178	104	450.0000	0.0000	1.2222	12.273	462.2732	0.00%	-	0	0	-	0	5.00%	0.50%	
179	105	450.0000	0.0000	1.2221	12.274	462.2736	0.00%	-	0	0	-	0	5.00%	0.50%	
180	106	450.0000	0.0000	1.2221	12.274	462.2743	0.00%	-	0	0	-	0	5.00%	0.50%	
181	107	450.0000	0.0000	1.2219	12.276	462.2756	0.00%	-	0	0	-	0	5.00%	0.50%	
182	108	450.0000	0.0000	1.2217	12.278	462.2779	0.00%	-	0	0	-	0	5.00%	0.50%	
183	109	450.0000	0.0000	1.2213	12.282	462.2821	0.00%	-	0	0	-	0	5.00%	0.50%	
184	110	450.0000	0.0000	1.2205	12.290	462.2898	0.00%	-	0	0	-	0	5.00%	0.50%	
185	111	450.0000	0.0000	1.2191	12.304	462.3039	0.00%	-	0	0	-	0	5.00%	0.50%	
186	112	450.0000	0.0000	1.2166	12.330	462.3295	0.00%	-	0	0	-	0	5.00%	0.50%	
187	113	450.0000	0.0000	1.2120	12.376	462.3764	0.00%	-	0	0	-	0	5.00%	0.50%	
188	114	450.0000	0.0000	1.2036	12.462	462.4625	0.00%	-	0	0	-	0	5.00%	0.50%	
189	115	450.0000	0.0000	1.1884	12.622	462.6221	0.00%	-	0	0	-	0	5.00%	0.50%	
190	116	450.0000	0.0000	1.1607	12.923	462.9231	0.00%	-	0	0	-	0	5.00%	0.50%	
191	117	450.0000	0.0000	1.1104	13.509	463.5089	0.00%	-	0	0	-	0	5.00%	0.50%	
192	118	450.0000	0.0000	1.0189	14.722	464.7221	0.00%	-	0	0	-	0	5.00%	0.50%	
193	119	450.0000	0.0000	0.8525	17.595	467.5953	0.00%	-	0	0	-	0	5.00%	0.50%	
194	120	450.0000	0.0000	0.5500	27.273	477.2727	0.00%	-	0	0	-	0	5.00%	0.50%	
195	121	1000.0000	0.0000	0.0000	0.000	1000.0000	0.00%	-	0	-	-	0	5.00%	0.50%	

Calculations

		Non-Decremented Benefits and Expenses			For Premium Determination using No Mortality Margin or Interest Margin										Experience Res		
Attained Age	Time	EOY Benefits On Death	EOY Benefits On Surrender	BOY Expenses	BOY Present Value of Death Benefits	BOY Present Value of Surrender Benefits	BOY Present Value of Per Policy Expenses	Present Value of Benefits and Policy Expenses	Percent of Premium Value of Expenses	Percent of Premium Profit Margin	\$1 for Pay Years	BOY PV of \$1	Boy Present Value of Premium Expenses and Profit	Premium	Premium Expenses and Profit	BOY PV of Premiums	PV of Premium Expenses
75	1	1,000,000	0	300	427,630	-	933	428,563	99.00%	8.00%	\$ 1	9.4370	217%	58,948	63,074	556,291	83,226
76	2	1,000,000	0	75	454,547	-	683	455,230	5.00%	8.00%	\$ 1	9.1002	118%	58,948	7,663	536,435	26,822
77	3	1,000,000	0	75	481,739	-	658	482,397	5.00%	8.00%	\$ 1	8.7680	114%	58,948	7,663	516,855	25,843
78	4	1,000,000	0	75	509,299	-	633	509,932	5.00%	8.00%	\$ 1	8.4407	110%	58,948	7,663	497,561	24,878
79	5	1,000,000	0	75	537,340	-	609	537,949	5.00%	8.00%	\$ 1	8.1185	106%	58,948	7,663	478,567	23,928
80	6	1,000,000	0	75	565,991	-	585	566,577	5.00%	8.00%	\$ 1	7.8019	101%	58,948	7,663	459,902	22,995
81	7	1,000,000	0	75	589,118	-	556	589,674	5.00%	8.00%	\$ 1	7.4158	96%	58,948	7,663	437,145	21,857
82	8	1,000,000	0	75	612,203	-	528	612,731	5.00%	8.00%	\$ 1	7.0335	91%	58,948	7,663	414,610	20,730
83	9	1,000,000	0	75	635,302	-	499	635,801	5.00%	8.00%	\$ 1	6.6547	87%	58,948	7,663	392,281	19,614
84	10	1,000,000	0	75	658,495	-	471	658,966	5.00%	8.00%	\$ 1	6.2789	82%	58,948	7,663	370,128	18,506
85	11	1,000,000	0	75	681,911	-	443	682,354	5.00%	8.00%	\$ 1	5.9050	77%	58,948	7,663	348,088	17,404
86	12	1,000,000	0	75	704,625	-	416	705,041	5.00%	8.00%	\$ 1	5.5522	72%	58,948	7,663	327,289	16,364
87	13	1,000,000	0	75	726,757	-	392	727,148	5.00%	8.00%	\$ 1	5.2212	68%	58,948	7,663	307,777	15,389
88	14	1,000,000	0	75	748,447	-	369	748,816	5.00%	8.00%	\$ 1	4.9137	64%	58,948	7,663	289,651	14,483
89	15	1,000,000	0	75	769,831	-	348	770,178	5.00%	8.00%	\$ 1	4.6336	60%	58,948	7,663	273,138	13,657
90	16	1,000,000	0	75	791,135	-	329	791,464	5.00%	8.00%	\$ 1	4.3862	57%	58,948	7,663	258,555	12,928
91	17	1,000,000	0	75	803,284	-	310	803,593	5.00%	8.00%	\$ 1	4.1310	54%	58,948	7,663	243,516	12,176
92	18	1,000,000	0	75	814,437	-	292	814,729	5.00%	8.00%	\$ 1	3.8968	51%	58,948	7,663	229,710	11,485
93	19	1,000,000	0	75	824,588	-	276	824,864	5.00%	8.00%	\$ 1	3.6837	48%	58,948	7,663	217,144	10,857
94	20	1,000,000	0	75	833,706	-	262	833,968	5.00%	8.00%	\$ 1	3.4922	45%	58,948	7,663	205,856	10,293
95	21	1,000,000	0	75	841,975	-	249	842,224	5.00%	8.00%	\$ 1	3.3185	43%	58,948	7,663	195,620	9,781
96	22	1,000,000	0	75	849,901	-	236	850,137	5.00%	8.00%	\$ 1	3.1521	41%	58,948	7,663	185,808	9,290
97	23	1,000,000	0	75	857,388	-	225	857,612	5.00%	8.00%	\$ 1	2.9949	39%	58,948	7,663	176,541	8,827
98	24	1,000,000	0	75	864,673	-	213	864,886	5.00%	8.00%	\$ 1	2.8419	37%	58,948	7,663	167,522	8,376
99	25	1,000,000	0	75	871,440	-	202	871,643	5.00%	8.00%	\$ 1	2.6998	35%	58,948	7,663	159,145	7,957
100	26	1,000,000	0	75	877,364	-	193	877,557	5.00%	8.00%	\$ 1	2.5753	33%	58,948	7,663	151,811	7,591
101	27	1,000,000	0	75	882,410	-	185	882,596	5.00%	8.00%	\$ 1	2.4694	32%	58,948	7,663	145,565	7,278
102	28	1,000,000	0	75	886,601	-	179	886,779	5.00%	8.00%	\$ 1	2.3814	31%	58,948	7,663	140,378	7,019
103	29	1,000,000	0	75	889,986	-	173	890,159	5.00%	8.00%	\$ 1	2.3103	30%	58,948	7,663	136,187	6,809
104	30	1,000,000	0	75	892,728	-	169	892,897	5.00%	8.00%	\$ 1	2.2527	29%	58,948	7,663	132,792	6,640
105	31	1,000,000	0	75	895,013	-	165	895,178	5.00%	8.00%	\$ 1	2.2047	29%	58,948	7,663	129,964	6,498
106	32	1,000,000	0	75	896,882	-	162	897,044	5.00%	8.00%	\$ 1	2.1655	28%	58,948	7,663	127,651	6,383
107	33	1,000,000	0	75	898,317	-	160	898,478	5.00%	8.00%	\$ 1	2.1353	28%	58,948	7,663	125,873	6,294
108	34	1,000,000	0	75	899,142	-	159	899,301	5.00%	8.00%	\$ 1	2.1180	28%	58,948	7,663	124,852	6,243
109	35	1,000,000	0	75	899,707	-	158	899,865	5.00%	8.00%	\$ 1	2.1062	27%	58,948	7,663	124,154	6,208
110	36	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
111	37	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
112	38	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
113	39	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
114	40	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
115	41	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
116	42	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
117	43	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
118	44	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
119	45	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
120	46	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
121	47	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
122	48	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
123	49	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
124	50	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190

Calculations

		Non-Decremented Benefits and Expenses			For Premium Determination using No Mortality Margin or Interest Margin										Experience Res		
Attained Age	Time	EOY Benefits On Death	EOY Benefits On Surrender	BOY Expenses	BOY Present Value of Death Benefits	BOY Present Value of Surrender Benefits	BOY Present Value of Policy Expenses	Present Value of Benefits and Policy Expenses	Percent of Premium Value of Expenses	Percent of Premium Margin	Profit \$1 for Pay Years	BOY PV of \$1	Boy Present Value of Premium Expenses and Profit	Premium	Premium Expenses and Profit	BOY PV of Premiums	PV of Premium Expenses
125	51	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
126	52	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
127	53	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
128	54	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
129	55	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
130	56	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
131	57	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
132	58	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
133	59	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
134	60	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
135	61	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
136	62	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
137	63	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
138	64	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
139	65	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
140	66	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
141	67	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
142	68	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
143	69	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
144	70	1,000,000	0	75	900,000	-	158	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
145	71	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
146	72	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
147	73	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
148	74	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
149	75	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
150	76	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
151	77	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
152	78	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
153	79	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
154	80	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
155	81	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
156	82	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
157	83	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
158	84	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
159	85	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
160	86	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
161	87	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
162	88	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
163	89	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
164	90	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
165	91	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
166	92	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
167	93	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
168	94	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
169	95	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
170	96	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,791	6,190
171	97	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190
172	98	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190
173	99	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190
174	100	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190
175	101	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190

Calculations

		Non-Decremented Benefits and Expenses			For Premium Determination using No Mortality Margin or Interest Margin										Experience Res		
Attained Age	Time	EOY Benefits On Death	EOY Benefits On Surrender	BOY Expenses	BOY Present Value of Death Benefits	BOY Present Value of Surrender Benefits	BOY Present Value of Per Policy Expenses	Present Value of Benefits and Policy Expenses	Percent of Premium Value of Expenses	Percent of Premium Profit Margin	\$1 for Pay Years	BOY PV of \$1	Boy Present Value of Premium Expenses and Profit	Premium	Premium Expenses and Profit	BOY PV of Premiums	PV of Premium Expenses
176	102	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,190
177	103	1,000,000	0	75	900,000	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,790	6,189
178	104	1,000,000	0	75	900,001	-	157	900,158	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,789	6,189
179	105	1,000,000	0	75	900,002	-	157	900,159	5.00%	8.00%	\$ 1	2.1000	27%	58,948	7,663	123,788	6,189
180	106	1,000,000	0	75	900,003	-	157	900,161	5.00%	8.00%	\$ 1	2.0999	27%	58,948	7,663	123,787	6,189
181	107	1,000,000	0	75	900,006	-	157	900,164	5.00%	8.00%	\$ 1	2.0999	27%	58,948	7,663	123,783	6,189
182	108	1,000,000	0	75	900,012	-	157	900,169	5.00%	8.00%	\$ 1	2.0998	27%	58,948	7,663	123,776	6,189
183	109	1,000,000	0	75	900,022	-	157	900,180	5.00%	8.00%	\$ 1	2.0995	27%	58,948	7,663	123,763	6,188
184	110	1,000,000	0	75	900,043	-	157	900,200	5.00%	8.00%	\$ 1	2.0991	27%	58,948	7,663	123,738	6,187
185	111	1,000,000	0	75	900,081	-	157	900,239	5.00%	8.00%	\$ 1	2.0983	27%	58,948	7,663	123,690	6,184
186	112	1,000,000	0	75	900,156	-	157	900,313	5.00%	8.00%	\$ 1	2.0967	27%	58,948	7,663	123,598	6,180
187	113	1,000,000	0	75	900,297	-	157	900,454	5.00%	8.00%	\$ 1	2.0938	27%	58,948	7,663	123,423	6,171
188	114	1,000,000	0	75	900,567	-	157	900,723	5.00%	8.00%	\$ 1	2.0881	27%	58,948	7,663	123,089	6,154
189	115	1,000,000	0	75	901,082	-	156	901,238	5.00%	8.00%	\$ 1	2.0773	27%	58,948	7,663	122,451	6,123
190	116	1,000,000	0	75	902,066	-	154	902,220	5.00%	8.00%	\$ 1	2.0566	27%	58,948	7,663	121,234	6,062
191	117	1,000,000	0	75	903,943	-	151	904,095	5.00%	8.00%	\$ 1	2.0172	26%	58,948	7,663	118,909	5,945
192	118	1,000,000	0	75	907,528	-	146	907,674	5.00%	8.00%	\$ 1	1.9419	25%	58,948	7,663	114,471	5,724
193	119	1,000,000	0	75	914,372	-	135	914,507	5.00%	8.00%	\$ 1	1.7982	23%	58,948	7,663	105,999	5,300
194	120	1,000,000	0	75	927,438	-	114	927,552	5.00%	8.00%	\$ 1	1.5238	20%	58,948	7,663	89,825	4,491
195	121	1,000,000	0	75	952,381	-	75	952,456	5.00%	8.00%	\$ 1	1.0000	13%	58,948	7,663	58,948	2,947

Calculations

		erve (no margin)	
Attained Age	Time	PV of Benefits and All Expenses	Experience Reserve
	0		
75	1	511,788	(44,503)
76	2	482,052	(54,384)
77	3	508,240	(8,616)
78	4	534,810	37,249
79	5	561,878	83,311
80	6	589,572	129,669
81	7	611,531	174,386
82	8	633,461	218,851
83	9	655,415	263,134
84	10	677,473	307,345
85	11	699,759	351,671
86	12	721,406	394,116
87	13	742,537	434,760
88	14	763,298	473,647
89	15	783,835	510,697
90	16	804,392	545,837
91	17	815,769	572,253
92	18	826,215	596,505
93	19	835,721	618,578
94	20	844,261	638,404
95	21	852,005	656,386
96	22	859,428	673,620
97	23	866,439	689,899
98	24	873,262	705,739
99	25	879,600	720,455
100	26	885,148	733,337
101	27	889,874	744,309
102	28	893,798	753,421
103	29	896,968	760,781
104	30	899,537	766,744
105	31	901,676	771,712
106	32	903,427	775,776
107	33	904,771	778,898
108	34	905,544	780,692
109	35	906,072	781,919
110	36	906,347	782,557
111	37	906,347	782,557
112	38	906,347	782,557
113	39	906,347	782,557
114	40	906,347	782,557
115	41	906,347	782,557
116	42	906,347	782,557
117	43	906,347	782,557
118	44	906,347	782,557
119	45	906,347	782,557
120	46	906,347	782,557
121	47	906,347	782,557
122	48	906,347	782,557
123	49	906,347	782,557
124	50	906,347	782,557

Calculations

erve (no margin)			
Attained Age	Time	PV of Benefits and All Expenses	Experience Reserve
125	51	906,347	782,557
126	52	906,347	782,557
127	53	906,347	782,557
128	54	906,347	782,557
129	55	906,347	782,557
130	56	906,347	782,557
131	57	906,347	782,557
132	58	906,347	782,557
133	59	906,347	782,557
134	60	906,347	782,557
135	61	906,347	782,557
136	62	906,347	782,557
137	63	906,347	782,557
138	64	906,347	782,557
139	65	906,347	782,557
140	66	906,347	782,557
141	67	906,347	782,557
142	68	906,347	782,557
143	69	906,347	782,557
144	70	906,347	782,557
145	71	906,347	782,557
146	72	906,347	782,557
147	73	906,347	782,557
148	74	906,347	782,557
149	75	906,347	782,557
150	76	906,347	782,557
151	77	906,347	782,557
152	78	906,347	782,557
153	79	906,347	782,557
154	80	906,347	782,557
155	81	906,347	782,557
156	82	906,347	782,557
157	83	906,347	782,557
158	84	906,347	782,557
159	85	906,347	782,557
160	86	906,347	782,557
161	87	906,347	782,557
162	88	906,347	782,557
163	89	906,347	782,557
164	90	906,347	782,557
165	91	906,347	782,557
166	92	906,347	782,557
167	93	906,347	782,557
168	94	906,347	782,557
169	95	906,347	782,557
170	96	906,347	782,557
171	97	906,347	782,557
172	98	906,347	782,557
173	99	906,347	782,557
174	100	906,347	782,557
175	101	906,347	782,557

Calculations

erve (no margin)			
Attained Age	Time	PV of Benefits and All Expenses	Experience Reserve
176	102	906,347	782,557
177	103	906,347	782,558
178	104	906,348	782,558
179	105	906,349	782,560
180	106	906,350	782,563
181	107	906,353	782,570
182	108	906,358	782,582
183	109	906,368	782,605
184	110	906,387	782,649
185	111	906,423	782,734
186	112	906,493	782,895
187	113	906,625	783,202
188	114	906,878	783,789
189	115	907,360	784,909
190	116	908,281	787,048
191	117	910,040	791,131
192	118	913,397	798,926
193	119	919,807	813,808
194	120	932,043	842,218
195	121	955,403	896,455

Calculations

Calculations for Reserve with Mortality and Interest Margins										
Attained Age	Time	BOY	BOY	BOY	Boy Present		Present		PV of	Reserve
		Present Value of Death Benefits	Present Value of Surrender Benefits	Present Value of Per Policy Expenses	Percent of Premium Value of Expenses	Premium of Expenses	Value of Expenses	Benefits and Premiums		
75	1	460,539	-	946	58,358	83,759	545,245	58,948	566,968	(21,723)
76	2	487,123	-	695	2,947	27,297	515,114	58,948	545,933	(30,819)
77	3	513,924	-	668	2,947	26,262	540,854	58,948	525,236	15,618
78	4	541,038	-	642	2,947	25,244	566,925	58,948	504,886	62,039
79	5	568,579	-	617	2,947	24,245	593,441	58,948	484,895	108,546
80	6	596,675	-	592	2,947	23,265	620,531	58,948	465,292	155,239
81	7	618,873	-	562	2,947	22,080	641,515	58,948	441,607	199,908
82	8	640,978	-	532	2,947	20,911	662,421	58,948	418,219	244,203
83	9	663,045	-	503	2,947	19,756	683,303	58,948	395,110	288,193
84	10	685,154	-	474	2,947	18,613	704,240	58,948	372,251	331,989
85	11	707,427	-	445	2,947	17,479	725,350	58,948	349,576	375,774
86	12	729,021	-	418	2,947	16,411	745,850	58,948	328,222	417,628
87	13	750,069	-	392	2,947	15,411	765,872	58,948	308,225	457,647
88	14	770,722	-	369	2,947	14,484	785,575	58,948	289,679	495,896
89	15	791,143	-	347	2,947	13,640	805,130	58,948	272,805	532,326
90	16	811,593	-	328	2,947	12,896	824,817	58,948	257,910	566,906
91	17	822,769	-	309	2,947	12,131	835,208	58,948	242,612	592,596
92	18	833,017	-	291	2,947	11,429	844,737	58,948	228,584	616,153
93	19	842,334	-	275	2,947	10,791	853,400	58,948	215,829	637,572
94	20	850,699	-	260	2,947	10,219	861,177	58,948	204,379	656,799
95	21	858,280	-	247	2,947	9,700	868,227	58,948	194,000	674,226
96	22	865,538	-	234	2,947	9,203	874,976	58,948	184,065	690,911
97	23	872,388	-	222	2,947	8,734	881,345	58,948	174,688	706,656
98	24	879,045	-	211	2,947	8,279	887,534	58,948	165,576	721,958
99	25	885,223	-	200	2,947	7,856	893,279	58,948	157,118	736,160
100	26	890,629	-	190	2,947	7,486	898,306	58,948	149,718	748,588
101	27	895,234	-	182	2,947	7,171	902,587	58,948	143,415	759,172
102	28	899,058	-	176	2,947	6,909	906,142	58,948	138,180	767,962
103	29	902,148	-	170	2,947	6,698	909,016	58,948	133,950	775,066
104	30	904,652	-	166	2,947	6,526	911,344	58,948	130,521	780,823
105	31	906,739	-	162	2,947	6,383	913,284	58,948	127,666	785,619
106	32	908,445	-	159	2,947	6,266	914,871	58,948	125,330	789,541
107	33	909,755	-	157	2,947	6,177	916,089	58,948	123,536	792,553
108	34	910,508	-	156	2,947	6,125	916,789	58,948	122,505	794,284
109	35	911,023	-	155	2,947	6,090	917,268	58,948	121,801	795,467
110	36	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
111	37	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
112	38	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
113	39	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
114	40	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
115	41	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
116	42	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
117	43	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
118	44	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
119	45	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
120	46	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
121	47	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
122	48	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
123	49	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
124	50	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082

Calculations

Calculations for Reserve with Mortality and Interest Margins

Attained Age	Time	BOY Present Value of Death Benefits	BOY Present Value of Surrender Benefits	BOY Present Value of Per Policy Expenses	Percent of Premium Value of Expenses	Boy Present Value of Premium Expenses	Present Value of Benefits and Premiums	PV of Premiums	Reserve With Margin	
125	51	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
126	52	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
127	53	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
128	54	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
129	55	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
130	56	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
131	57	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
132	58	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
133	59	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
134	60	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
135	61	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
136	62	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
137	63	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
138	64	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
139	65	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
140	66	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
141	67	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
142	68	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
143	69	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
144	70	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
145	71	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
146	72	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
147	73	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
148	74	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
149	75	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
150	76	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
151	77	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
152	78	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
153	79	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
154	80	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
155	81	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
156	82	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
157	83	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
158	84	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
159	85	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
160	86	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
161	87	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
162	88	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
163	89	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
164	90	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
165	91	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
166	92	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
167	93	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
168	94	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
169	95	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
170	96	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
171	97	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
172	98	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
173	99	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
174	100	911,290	-	155	2,947	6,072	917,517	58,948	121,435	796,082
175	101	911,290	-	155	2,947	6,072	917,517	58,948	121,434	796,082

Calculations

Calculations for Reserve with Mortality and Interest Margins										
Attained Age	Time	BOY Present Value of Death Benefits	BOY Present Value of Surrender Benefits	BOY Present Value of Policy Expenses	Percent of Premium Value of Expenses	Boy Present Value of Premium Expenses	Present Value of Benefits and Expenses	Premiums	PV of Premiums	Reserve With Margin
176	102	911,291	-	155	2,947	6,072	917,517	58,948	121,434	796,083
177	103	911,291	-	155	2,947	6,072	917,517	58,948	121,434	796,083
178	104	911,291	-	155	2,947	6,072	917,517	58,948	121,433	796,084
179	105	911,292	-	154	2,947	6,072	917,518	58,948	121,432	796,086
180	106	911,294	-	154	2,947	6,071	917,520	58,948	121,430	796,090
181	107	911,297	-	154	2,947	6,071	917,523	58,948	121,426	796,097
182	108	911,302	-	154	2,947	6,071	917,528	58,948	121,418	796,110
183	109	911,313	-	154	2,947	6,070	917,538	58,948	121,404	796,134
184	110	911,333	-	154	2,947	6,069	917,556	58,948	121,377	796,179
185	111	911,370	-	154	2,947	6,066	917,591	58,948	121,326	796,265
186	112	911,440	-	154	2,947	6,061	917,656	58,948	121,230	796,426
187	113	911,572	-	154	2,947	6,052	917,778	58,948	121,049	796,729
188	114	911,820	-	154	2,947	6,035	918,009	58,948	120,709	797,300
189	115	912,289	-	153	2,947	6,003	918,445	58,948	120,067	798,378
190	116	913,175	-	151	2,947	5,943	919,269	58,948	118,854	800,415
191	117	914,851	-	148	2,947	5,828	920,827	58,948	116,561	804,266
192	118	918,021	-	143	2,947	5,611	923,775	58,948	112,221	811,553
193	119	924,024	-	132	2,947	5,200	929,357	58,948	104,003	825,353
194	120	935,397	-	113	2,947	4,422	939,932	58,948	88,435	851,497
195	121	956,938	-	75	2,947	2,947	959,960	58,948	58,948	901,012