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Draft Report of the American Academy of Actuaries' Commissioners Standard Ordinary Task Force

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

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Executive Summary

At the request of the National Association of Insurance Commissioners (NAIC), the Society of Actuaries (SOA) and the American Academy of Actuaries (Academy) have worked together to produce a proposal for a new Commissioners Standard Ordinary (CSO) mortality table for use in the current valuation system. While the Academy's Life Practice Council believes that a move to a valuation system that provides more actuarial flexibility and responsibility to set reserves that reflect individual company characteristics is desirable, we recognize that a new table is appropriate.

The proposed 2001 CSO Table is based on recent mortality experience and is intended to provide a minimum standard for the valuation of standard ordinary life insurance. However, this standard may not produce adequate reserves in all cases. In addition, since the table is intended only for valuation, the use of this table may not be appropriate for pricing.

The SOA was responsible for developing an underlying basic table that both represented current experience and was smooth enough to be the basis for a valuation table, with input from the NAIC's Life and Health Actuarial Task Force (LHATF). The Academy was responsible for developing appropriate margins for use in a valuation table and for evaluating the resulting table.

The SOA Task Force's basic table is based on the 1990-1995 Basic Table that was developed by the SOA's Mortality Experience Committee. This table is based on the mortality experience over 1990-1995 of those companies that participated in the study. Additional data from other sources was used to supplement the experience data at young and old ages where the experience data was sparse. The mortality was projected to the year 2001 using recent mortality improvement trends. Finally, the table was graduated to provide the smoothness necessary for a valuation table. The resulting table is called the 2001 Valuation Basic Table (2001 VBT).

The Academy Task Force, with input from the NAIC Life and Health Actuarial Task Force (LHATF), developed an appropriate loading formula to apply to the 2001 VBT. The use of terms such as "load", "loaded", "loading", and "margin" in this report refer to additions to the 2001 VBT so the proposed 2001 CSO Table will provide for some variation in mortality risk both over time and among companies that contributed data to the 1990-95 SOA mortality study.

The type of loading formula is similar to that used in developing the 1980 CSO Table. The loading is an inverse function of the curtate expectation of life, which provides an absolute loading that increases as age increases and a percentage loading that generally decreases with age. At the instruction of LHATF, the parameters were established to provide an overall 15 percent load. Various analyses were performed to validate the appropriateness of the loads.

The proposed 2001 CSO Table was then examined for consistency, by the Academy Task Force. Sample reserve values were calculated using select and ultimate as well as ultimate mortality, and these were examined for appropriate relationships.

We recommend that the proposed 2001 CSO Table be adopted for use as a valuation table to replace the 1980 CSO Table under the current valuation structure. The new table is consistent with current experience and will result in reserves (excluding deficiency reserves) that overall are approximately 20 percent lower than those produced by the 1980 CSO Table.

Introduction

The current valuation standard, the 1980 CSO Table, is more than 20 years old. As is shown in this report, current mortality levels, represented by the 2001 Valuation Basic Table (2001 VBT) are lower than the mortality levels underlying the 1980 CSO Table. The current valuation mortality standard produces reserves, excluding deficiency reserves, that overall are higher for the illustrated model office than those produced by the proposed 2001 CSO Table.

At the request of the National Association of Insurance Commissioners' (NAIC) Life and Health Actuarial Task Force (LHATF), both the Society of Actuaries (SOA) and the American Academy of Actuaries (Academy) have been working to develop a proposed mortality table intended to replace the 1980 CSO Table in the current valuation structure. While the Academy's Life Practice Council believes that a move to a valuation system that provides more actuarial flexibility and responsibility to set reserves that reflect individual company characteristics is desirable, we recognize that a new table is appropriate.

The SOA and Academy divided this work into two pieces: the construction of a valuation basic experience table, and the development of an appropriate loaded valuation table. The first part of this work was completed by the SOA's Individual Life Insurance Valuation Mortality Research Task Force (SOA Task Force). This group developed the 2001 VBT, a graduated experience table suitable for use as the basis for a valuation table. The second part was done by the Academy's CSO Task Force and its Loading Subcommittee (Academy Task Force), which, with input from LHATF, developed the loads and reviewed reserves described in this report.

These two groups have developed the proposed 2001 CSO Table-- a table that is appropriate as a replacement for the 1980 CSO Table. This proposed table, to be referred to in the remainder of this report as the proposed 2001 CSO Table, is shown in Appendix A. Separate nonsmoker, smoker, and composite nonsmoker/smoker tables were developed for males and females for a total of six tables. Each table has values for a 25-year select period and for ultimate ages.

The proposed 2001 CSO table is intended to provide a minimum standard for the valuation of standard ordinary life insurance. However, this standard may not produce adequate reserves in all cases. In addition, since the table is intended only for valuation, the use of this table may not be appropriate for pricing.

This report describes the work performed by the SOA and Academy Task Forces in developing this table. Additional details, various results of the proposed table, and the testing of that table can be found in the appendices.

The Academy Task Force would like to recognize and thank those members of the SOA who developed the 2001 VBT:

SOA Individual Life Insurance Valuation Mortality Task Force

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In addition, the Academy Task Force would like to thank the following organizations for providing data used in the development of the proposed 2001 CSO Table:

Jack Bragg and Associates
LIMRA International
U.S. Department of Veterans Affairs

The Academy Task Force also would like to thank the following individuals who peer reviewed this report:

Thomas A. Campbell
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Construction of the 2001 Valuation Basic Table

The SOA Task Force created the 2001 VBT as a first step toward development of a proposed mortality table to replace the 1980 CSO Table. In constructing the 2001 VBT, the following basic premises were set by the SOA Task Force:

- Utilize the SOA 1990-95 experience study as the primary source of experience.
- Develop six separate age nearest birthday VBT: nonsmoker male, smoker male, composite nonsmoker/smoker male, nonsmoker female, smoker female, and composite nonsmoker/smoker female.
- Supplement the SOA experience with experience from other sources where the SOA experience was limited or not available. Mortality experience above issue age 75 and attained age 90 were specifically noted as areas where experience should be supplemented.
- Consider such issues as preferred risk underwriting, the impact of Acquired Immune Deficiency Syndrome (AIDS) and mortality improvement in the construction of the VBT.

The SOA Task Force published a draft of the 2001 VBT in March 2001 and the Academy Task Force used this table in its initial development of the proposed 2001 CSO Table. The SOA Task Force later released a draft of the final report, including final mortality tables. This report is attached as Appendix K. The reader of the Academy report needs to be familiar with the SOA report to fully understand the Academy proposal. The Academy Task Force incorporated the finalized 2001 VBT in the final development of the proposed 2001 CSO Table.

SOA 1990-95 Experience Tables

In order to fulfill its charge of reporting on insured lives mortality experience over successive five-year periods, the SOA Individual Life Insurance Experience Committee (SOA Committee) released the 1990-95 Basic Mortality Tables in April 2000. The data underlying the 1990-95 Basic Mortality Tables consists of:

- Standard, ordinary, individually underwritten life insurance experience contributed by 21 companies for policy anniversaries between 1990 and 1995, nearly 60 percent of which came from four companies. This includes term conversions tracked from the original issue date as well as preferred risk policies, but excludes policies with limited or no underwriting (such as simplified issue, guaranteed issue, extended term insurance, reduced paid-up insurance).
- \$4.1 trillion of exposures for males and \$1.6 trillion for females.
- Medical (20.5 percent of duration 1-15 exposures), non-medical (42.6 percent of duration 1-15 exposures) and paramedical (36.8 percent of duration 1-15 exposures) issues combined.
- Average policy sizes of \$116,000 for male nonsmokers, \$75,000 for male smokers, \$65,000 for female nonsmokers, and \$47,000 for female smokers.

Because the SOA Committee was primarily interested in developing experience tables with a good fit to the underlying data, this experience was graduated (extrapolated for issue ages over 72) without adjustment for large claims or other features. The resulting 1990-95 Basic Mortality Tables included male composite (smoker, nonsmoker and smoking status unknown experience combined) and female composite tables in age nearest birthday and age last birthday formats.

Male/Female Composite Tables

In developing the 2001 VBT utilizing the 1990-95 Basic Mortality Tables, the actuarial issues relevant to the creation of male and female tables for the SOA Task Force included:

- *Separate male and female mortality.* The SOA has been reporting experience separately for males and females for many years. Consistent with this practice, separate male and female mortality tables have been created as part of the 1990-95 Basic Mortality Tables.

- *Select period:* The 1990-95 Basic Mortality Tables were created using a 25-year select period format. However, at younger and older issue ages, the actual select period is less. In these instances, the remainder of the select period mortality rates consists of the ultimate mortality rates for the corresponding attained age. The select period is consistent with the SOA 1985-90 Basic Mortality Tables and reflects insured lives experience from the study period. It should be noted that the 1980 CSO Table was created with no select period, and subsequently 10-year select factors (and 19-year select factors with the adoption of Regulation XXX) were developed.
- *Smoothness:* The 1990-95 Basic Mortality Tables emphasized fit of the underlying data. However, the SOA Task Force believes that a valuation mortality table should emphasize smoothness over fit. The SOA Task Force utilized a two-dimensional Whittaker-Henderson Type B graduation method to ensure smoothness of the 2001 VBT. This graduation method is different from the Jenkins fifth-difference interpolation used in the development of the 1980 CSO Table. The Jenkins graduation worked well for the 1980 CSO Table one-dimensional graduation (ultimate mortality only), but does not work well for the 2001 VBT two-dimensional graduation (select and ultimate mortality).

Also, after application of the graduation techniques, the SOA Task Force utilized certain tests that were designed to ensure that the VBT met certain goals as described below:

1. *Duration within issue age row test:* With a few reasonable exceptions where the experience clearly justifies, such as mortality at very young ages (less than 5), mortality for any given issue age should increase with duration since issue. That is,

$$q_{[x]} \leq q_{[x]+1} \leq q_{[x]+2} \leq \dots$$

2. *Issue age within column test:* With a few reasonable exceptions where the experience clearly justifies, such as mortality at very young ages (less than 5), mortality for any given duration since issue should increase with issue age. That is,

$$q_{[x]+t} \leq q_{[x+1]+t} \leq q_{[x+2]+t} \leq \dots$$

3. *Attained age test:* Mortality for any given attained age should increase with duration since issue. That is,

$$q_{[x]} \leq q_{[x-1]+1} \leq q_{[x-2]+2} \leq \dots$$

- *Older and younger issue age mortality.* The 1990-95 SOA mortality experience database had no experience data above central issue age 72, limited data for attained ages over 85 and limited data for juveniles for use in the creation of the 1990-95 Basic Mortality Tables. The SOA Task Force utilized data from other sources to supplement its experience data at these ages. A special mortality study was prepared for the SOA Task Force by Jack Bragg and Associates, with results split by nonsmoker, smoker, and smoking status unknown; by male and female; and by select and ultimate periods. Male ultimate, composite mortality was also obtained from the Veterans' Administration (specifically, the National Service Life Insurance program that covered millions of servicemen from World War II).
 - *AIDS claims.* Later durations (durations 6 and later) for issue ages 20 through 30 spiked above 100 percent of the 1975-80 Basic Mortality Tables. The SOA Task Force believed that the high values at these durations were attributable to excess AIDS deaths, both identifiable and non-identifiable, and that these results overstate the impact of AIDS today.

Smoker/Nonsmoker Tables

The SOA Task Force was charged with developing a VBT that provided separate tables for smokers and nonsmokers. This is consistent with the 1980 CSO Table that has smoker distinct versions. In developing smoker/nonsmoker distinct tables, the SOA Task Force explored experience data on a smoking status distinct basis for both insured and non-insured lives. Insured experience data was obtained from several sources, including the SOA 1990-95 experience and Bragg and Associates experience. Non-insured experience data was also obtained from various sources, including "An Assessment of US and Canadian Smoking Reduction Objectives for the Year 2000" (Pechmann, Dixon, Layne) from the American Journal of Public Health.

The preliminary composite 2001 VBT for males and females was multiplied by the nonsmoker/smoker factors and projected using the same mortality improvement assumptions as for the composite table. The resulting mortality rates were not uniformly smooth based on the rules established, and therefore a separate two-dimensional Whittaker-Henderson Type B graduation was conducted.

Mortality Improvement

In developing the VBT, the SOA Task Force explored mortality improvement in both insured and non-insured populations and recommended how the mortality experience underlying the 1990-95 Basic Mortality Tables could be projected to 2001, the projected date at which the proposed valuation table would be released.

Mortality improvement up to the start date of the 2001 VBT was considered by the SOA Task Force because the experience underlying the table has a central year of 1992, and mortality improvement has been experienced in both insured and population mortality in recent years.

The SOA Task Force examined improvement in insured lives mortality from the 1985-90 Basic Mortality Tables to the 1990-95 Basic Mortality Tables. It also considered mortality improvement from various non-life insurance sources (general U.S. population over the period 1987-97, RP-2000 Study data, Social Security data for the period 1990-94, Federal Civil Service data for the period 1988-96, and SOA Group Annuitant Mortality for the period 1988-94). Based on these sources, the following observations were made:

- Mortality improvement has tended to be larger for males than females.
- Mortality improvement has tended to be smaller at attained ages under 45 and at attained ages above 85.
- Annual mortality improvement for males aged 55-80 is in the range of 1.0 percent for Social Security and Federal Civil Service data. Insured experience is somewhat higher.
- Annual mortality improvement for females aged 55-80 is in the range of 0.5 percent.
- In some studies, female mortality has deteriorated in recent years.

As a result, the projection of annual male mortality improvement in the 2001 VBT is 0.0 percent at attained ages 0-45, grading to 1.0 percent at attained ages 55-80, and grading back to 0.0 percent at attained ages 90+. The 2001 VBT annual female mortality improvement is 0.0 percent at attained ages 0-45, grading to 0.5 percent at attained ages 55-85, and grading back to 0.0 percent at attained ages 90+.*

* For more details, see the SOA's "Report of the Individual Life Insurance Valuation Mortality Task Force" released March, 2001.

Consideration was also given to projecting mortality improvement past the projected start date of the 2001 VBTA although some companies may anticipate mortality improvement past the start date of the 2001 VBT, life insurance mortality tables used in the current regulatory environment (model illustration regulation, Regulation XXX) have not allowed the use of mortality improvement. A future event could have a significant negative or positive impact on mortality; this cannot be predicted. Therefore, no mortality improvement past the start date of the 2001 VBT was utilized.

Preferred Risk

Throughout the 1990's, there has been an increased use of preferred risk classes. Preferred risk classes have been primarily used with term insurance products, however, preferred risk classes can also be found on universal life, variable universal life, and other permanent life insurance products.

The SOA Task Force considered varying the basic mortality table by preferred risk class. However, since there is no clear definition of preferred risk in the industry, no experience data has been compiled. Therefore, the SOA Task Force did not construct separate mortality tables for preferred risks.

Extended Term Insurance

The SOA Task Force also considered development of a separate table for extended term insurance (ETI). The SOA Task Force obtained information from only one company. This information indicated that there was not a material difference between ETI mortality and ordinary insured mortality. The SOA Task Force believes that the increasing prevalence of universal life and variable universal life has reduced the importance of ETI as a nonforfeiture option and therefore the amount of ETI exposures. Given the ETI experience collected and the limited amount of ETI exposures, it was determined that a separate ETI table was not warranted.

2001 Valuation Basic Table

The 2001 VBT was created by the SOA in nonsmoker, smoker, and composite nonsmoker/smoker forms for both males and females and has served as the base for the proposed 2001 CSO Table.

Loading the 2001 Valuation Basic Table

The Academy Task Force first developed considerations that it would take into account in the development of the 2001 VBT loads. As noted earlier in this report, terms such as “load”, “loaded”, “loading”, and “margin” refer to the amounts added to the 2001 VBT so the proposed 2001 CSO Table will provide for the mortality risk both over time and among most companies.

After consulting with the LHATF, the Academy Task Force developed the 2001 VBT mortality loads presented in this report. The AAA Task Force performed various analyses on the proposed 2001 CSO Table before making its recommendation.

Loading Considerations and Tests

The Academy Task Force took the following considerations into account in the development of the proposed 2001 CSO Table:

- Statutory reserves based on the proposed 2001 CSO Table, using either select and ultimate mortality or ultimate mortality, should not be materially less than statutory reserves developed using the underlying 2001 VBT select and ultimate mortality. Reserve comparisons for both terminal and mean reserves use the CRVM 1-year preliminary term methodology with current statutory interest rates and no provision for lapses.
- The proposed 2001 CSO Table should make reasonable provision for possible adverse mortality experience.
- Terminal reserves based on the proposed 2001 CSO Table should not be significantly distorted when compared with terminal reserves on the 2001 VBT.
- The loading should be consistent in providing margins for males and females; for smokers, nonsmokers, and smokers and nonsmokers combined; and during the select and ultimate periods.

Loading Approach, Form and Level

Two possible loading approaches were considered – “Mortality Margin” and “Reserve Margin”.

In the "Mortality Margin" approach, the mortality load will ensure that the loaded table covers the mortality experience of most companies. This approach is consistent with one of the constraints used in the development of the 1980 CSO Table, that "loaded mortality rates should encompass the standard mortality experience ... of most companies writing ordinary insurance with normal underwriting standards."^{*}

In the "Reserve Margin" approach, the loaded tables produce reserves that are adequate for most companies. This requires consideration of factors other than mortality in the determination of the loaded table. These factors may include those that are in the statutory reserve calculation (such as interest) as well as those that aren't (such as lapse).

The Academy Task Force, after consulting with the LHATF at their March 22, 2001, meeting in Nashville:

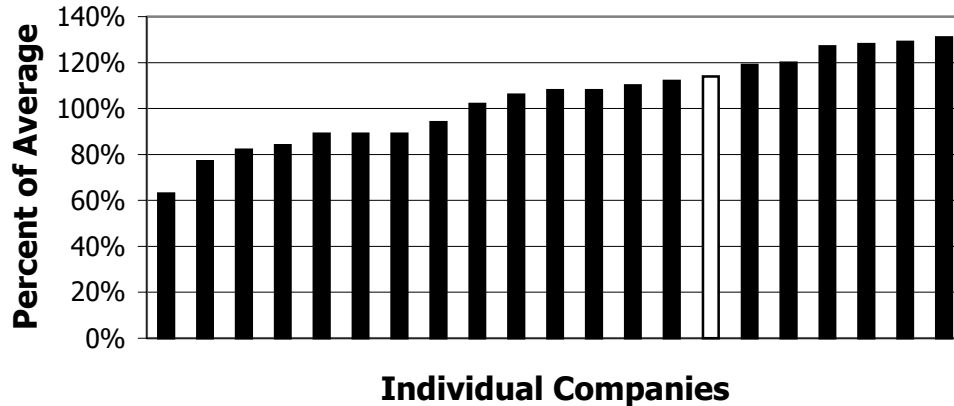
- used the Mortality Margin approach in determining the proposed 2001 CSO Table,
- developed the load in the form of a function of the reciprocal of the curtate expectation of life, and
- targeted a load level that overall is 15 percent of the 2001 VBT.

Using a load that is a function of the reciprocal of the curtate expectation of life is consistent with the 1980 CSO Table loads, provides an absolute load that is monotonically increasing with age, and provides a percentage load that generally decreases with age.

The overall load level of 15 percent ensures that the loaded table produces expected tabular deaths (during both the select and ultimate periods) that exceed the number of actual deaths in the 1990-95 study period, for most of the companies that contributed data to the 1990-95 SOA mortality study. During the first 15 years of the select period, an overall 15 percent load produces expected tabular deaths that exceed the number of actual deaths in the 1990-95 study period for 15 of the 21 companies (71 percent), that contributed to the study. The white bar, in Chart 1 below, represents the 15th of the 21 companies.

* TSA XXXIII, page 643.

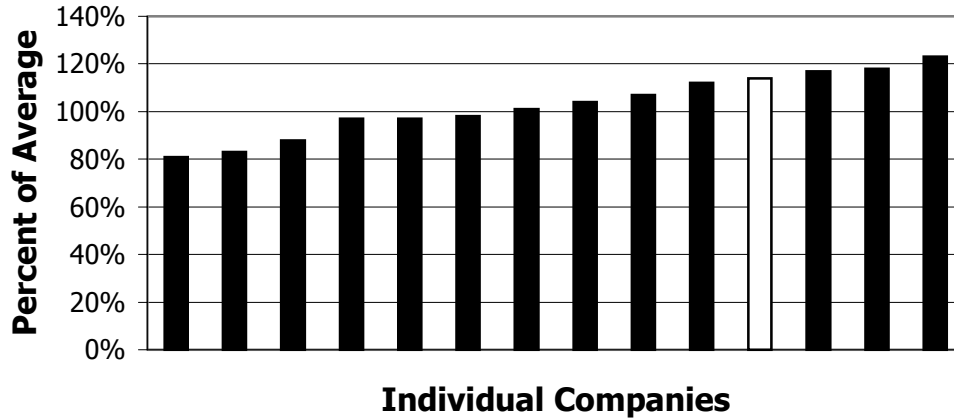
Chart 1
1990-95 SOA Comparative Mortality Study
Issue Years 1980-94 (Policy Years 1-15)



In addition, the 1990-95 SOA mortality study provides information by issue year groupings of 1990-94, 1985-89, and 1980-84. These issue year groupings contain policies in durations 1-5, 1-10, and 6-15, respectively. For both the 1990-94 and 1985-89 groupings, the expected tabular deaths produced by an overall 15 percent load exceed the actual deaths in the 1990-95 study period for 15 of 21 companies (71 percent). For the 1980-84 issue year grouping, the expected tabular deaths produced by an overall 15 percent load exceed the actual deaths in the 1990-95 study period for 14 of 21 companies (67 percent).

During the ultimate period, an overall 15 percent load produces expected tabular deaths that exceed the number of actual deaths in the 1990-95 study period for 11 of the 14 companies (79 percent) that contributed ultimate mortality data. The white bar, in Chart 2 below, represents the 11th of the 14 companies.

Chart 2
1990-95 SOA Comparative Mortality Study
Ultimate Period



Thus, based on the SOA experience, an overall 15 percent load provides reasonable assurance that the number of expected tabular deaths will exceed the number of actual deaths for most companies in the study, during both the select and ultimate periods. Also, the percentage of companies for which the expected tabular deaths exceed the actual deaths, is relatively consistent between the select and ultimate periods, as well as during various segments of the select period.

Determination of Loading Formula

The loading formula used in the development of the proposed 2001 CSO Table is:

$$\text{Load}_{[x]+t} = \frac{0.0056 - 0.00016 \cdot (x + t) + 0.000008 \cdot (x + t)^2}{e_{[x]+t}}$$

where $e_{[x]+t}$ is the curtate expectation of life based on the 2001 VBT.

The constant term in the numerator (+0.0056) was set to produce a 15 percent load when expressed as a percent of the VBT at age 0 for males based on the working version of the 2001 VBT available to the Academy Task Force early in 2001. (At that time, the female 2001 VBT was not complete.) Subsequent revisions to the 2001 VBT increased the male mortality rate at age 0 but had minimal effect on the load. As a result the load expressed as a percent of the VBT at age 0 was reduced to about 8 percent. Analysis of reserves indicated that this change was insignificant. As a result, the Academy Task Force decided not to revise the loading formula.

The negative term involving $x+t$ $[-0.00016 \cdot (x+t)]$ was necessary to keep the loading at appropriate levels at younger ages.

The positive term involving x^2 $[+0.000008 \cdot (x+t)^2]$ was chosen to maintain mortality margins of at least 10 percent for ages 50 and over.

The determination of the factors in the loading formula was done using composite, ultimate mortality. Since the level of the load was established at approximately 15 percent, the coefficients in the numerator of the loading formula were determined such that the expected number of extra deaths that the composite, ultimate loaded table produced over the composite, ultimate unloaded table would be 15 percent.

Grading Loads to Zero at Age 120

The loads generated by the loading formula, when added to the 2001 VBT, produce mortality rates greater than one at the very high attained ages (approximately 115 and above). To resolve this situation, the loads above age 100 were modified so that the load produced by the formula at age 100 was linearly graded to zero at age 120. The resulting mortality rates in the proposed 2001 CSO Table equal one only at age 120 and never exceed one at any age.

2001 Valuation Basic Table and Proposed 2001 CSO Table

Appendix A contains 12 select and ultimate mortality tables – the 2001 VBT and the proposed 2001 CSO Table; for males and females; and for composite, nonsmokers and smokers. It also contains an ultimate mortality table for both the 2001 VBT and the proposed 2001 CSO Table.

The AAA Task Force also performed consistency tests on the mortality. The following mortality relationships were desired:

- $q_{[x+1]+t} > q_{[x]+t}$, with reasonable exceptions (e.g., ages 0-5 and males in their 20's).
- $q_{[x]+t+1} > q_{[x]+t}$, with reasonable exceptions.
- $q_{[x]+t+1} > q_{[x+1]+t}$, with reasonable exceptions.
- 1st Differences: $(q_{[x]+t+2} - q_{[x]+t+1})$ generally greater than $(q_{[x]+t+1} - q_{[x]+t})$.
- 2nd Differences: Pattern of 2nd differences should be smooth.
- $q^{\text{Smoker}} > q^{\text{Composite}} > q^{\text{Nonsmoker}}$
- $q^{\text{Male}} > q^{\text{Female}}$
- Any significant variation by age in the ratio of $q^{2001 \text{ CSO}}$ to $q^{2001 \text{ VBT}}$ should be explainable.

In general, these relationships are present in both the 2001 VBT and the proposed 2001 CSO Table. There are a few isolated 2nd difference patterns that are not as smooth as the Academy Task Force would prefer. However, since these patterns appear to have no significant impact on statutory reserve levels and are also very difficult to smooth, no changes were made to the proposed table to try to correct these patterns.

Comparisons of Mortality Rates

Various comparisons of the mortality rates are shown in Appendix B. Specifically, the following comparisons are made:

- *1975-80 Basic Table versus 1990-95 Basic Table on an ultimate, composite basis.* The large increase in the ratio of 1990-95 to 1975-80 mortality from about age 25 to age 50, particularly for males, is due to AIDS.
- *1990-95 Basic Table versus 2001 VBT on an ultimate, composite basis.* The dip in the ratio of the 2001 VBT to 1990-95 mortality from about age 25 to 50, particularly for males, is due to the fact that some of the impact of AIDS has been removed through the smoothing process in the development of the 2001 VBT. For female mortality at younger ages, the combined effect of graduation and a lack of mortality improvement at ages less than 45 resulted in the 2001 VBT being greater than 100 percent of 1990-95 mortality.

- *2001 VBT versus Proposed 2001 CSO Table on an ultimate, composite basis.* The ratio of the proposed 2001 CSO table to the 2001 VBT shows the load added to the 2001 VBT. As was desired, the percentage load generally decreases with age. The discontinuity at age 100 is a result of the load being graded from its calculated value at age 100 to 0 at age 120.
- *1980 CSO Table versus Proposed 2001 CSO Table on an ultimate, composite basis.* For most of the commonly insured ages (from about age 25 to age 75), the proposed 2001 CSO Table mortality rates are in the range of 50 percent to 80 percent of the 1980 CSO Table. In addition, this ratio is generally increasing with age, which means that the slope of the ultimate proposed 2001 CSO Table is generally greater than the slope of the ultimate 1980 CSO Table.
- *1980 CSO Table versus Proposed 2001 CSO Table on an ultimate, nonsmoker basis.* Since nonsmokers comprise most of the composite mortality (over 75 percent of the composite 1990-95 mortality), the relationship between the nonsmoker versions of the 1980 CSO Table and the proposed 2001 CSO Table is very similar to the relationship between the composite versions of the 1980 CSO Table and the proposed 2001 CSO Table.
- *1980 CSO Table versus Proposed 2001 CSO Table on an ultimate, smoker basis.* The general shape of the graph of the ratio of the proposed 2001 CSO Table to the 1980 CSO Table for smoker mortality is similar to composite and nonsmoker mortality. However, the proposed 2001 CSO Table female ultimate smoker mortality is higher than the 1980 CSO Table female ultimate smoker mortality from age 57 to age 74.

Proposed 2001 CSO Table Impact on Statutory Reserves by Cell

The Academy Task Force calculated statutory reserves for three plans of insurance – whole life, 20-year level premium term, and universal life with level premiums set so that the cash value is positive at all ages prior to 100 and is near zero at age 100 (hereinafter referred to as “level premium to zero UL”). Both mean and terminal statutory reserves were calculated for whole life and 20-year level premium term; mean statutory reserves were calculated for universal life. The reserves were calculated according to current NAIC valuation rules on a CRVM one-year preliminary term continuous basis. The following reserve relationships were desired and attained:

- Reserves based on ultimate mortality should generally be less than reserves based on select and ultimate mortality.
- Reserves based on the 2001 VBT should generally be less than reserves based on the proposed 2001 CSO Table.
- Terminal reserves based on the proposed 2001 CSO Table should not be significantly distorted compared to terminal reserves based on the VBT.
- A weighted average of the proposed 2001 CSO Table smoker reserves and the proposed 2001 CSO Table nonsmoker reserves, with the weights based on the underlying distribution of smokers and nonsmokers in the 1990-95 mortality, should approximate the reserves based on the proposed 2001 CSO Table composite mortality.
- Reserves on an age and duration basis should be smooth and follow the expected patterns (i.e., increasing with duration for whole life and UL; “humpback” for level premium term).

Appendix C compares 1-year preliminary term reserve values at 4.50 percent interest on a cell by cell basis for various plans of insurance, issue ages, policy durations, and mortality tables (select and ultimate/ultimate, composite/nonsmoker/smoker, 1980 CSO Table/proposed 2001 CSO Table/2001 VBT). All reserve comparisons involving the 1980 CSO Table were done on an ultimate basis and thus did not include select factors (neither the 10-year 1980 CSO Table select factor nor the Regulation XXX 19-year 1980 CSO Table select factors). In practice, reserves are usually determined using ultimate mortality rather than select and ultimate mortality, since reserves based on ultimate mortality are generally less than those based on select and ultimate mortality.

For whole life, with the exception of the first duration when the reserve is a 1-year preliminary term reserve, reserves based on the proposed ultimate 2001 CSO Table are generally 80 percent to 90 percent of reserves based on the 1980 CSO Table during the first 25 durations or so. (The proposed 2001 CSO Table terminal reserves gradually grade to \$1,000 per \$1,000 at age 120, while the 1980 CSO Table terminal reserves grade to \$1,000 per \$1,000 at age 99.) This relationship holds for both nonsmoker and composite mortality.

For whole life reserves using smoker mortality, the same general relationship holds for males. However, for female smokers, the reserves based on the proposed 2001 CSO Table are higher than the reserves based on the 1980 CSO Table at some ages and durations. This result is due to the slope of the proposed 2001 CSO Table female mortality, from around age 50 to age 70, being much steeper than the corresponding 1980 CSO Table female mortality.

The whole life reserves based on the proposed ultimate 2001 CSO Table are generally greater than the reserves based on the 2001 VBT by a few percentage points. For the age 45 example shown in Appendix C, renewal year proposed 2001 CSO Table reserves are about 2 percent to 4 percent higher than VBT reserves depending on duration.

For 20 year level premium term, male reserves based on the proposed 2001 CSO Table are generally 55 percent to 70 percent of reserves based on the 1980 CSO Table for issue ages 35, 45, and 55. This reserve ratio drops down to close to 40 percent at some durations for issue age 25, and increases to nearly 80 percent for issue age 65. These same general relationships hold for smoker, nonsmoker and composite mortality.

For female 20-year level premium term, the ratio of the proposed 2001 CSO Table reserves to the 1980 CSO Table reserves varies by issue age and duration more than for males, but is generally less than 100 percent. The ratio exceeds 100 percent for female smokers at some issue ages because the slope of the female smoker mortality is much steeper for the proposed 2001 CSO Table than the 1980 CSO Table, between ages 50 and 70.

The 20-year level premium term reserves based on the proposed 2001 CSO Table are greater than the reserves based on the 2001 VBT by percentage amounts that vary by issue age. For the age 45 example shown in Appendix C, renewal year proposed 2001 CSO Table reserves are about 10 percent to 14 percent higher than the 2001 VBT reserves, depending on duration. Other ages were also looked at, but are not shown in Appendix C. In general, the ratio of 20-year level premium term reserves based on the proposed 2001 CSO Table, to those based on the 2001 VBT, decreases as the issue age increases.

For level premium to zero UL, reserves based on the proposed 2001 CSO Table range from about 60 percent (depending on issue age, gender and smoking status) to 100 percent of reserves, based on the 1980 CSO Table. Generally, by the sixth or seventh policy duration, the policy's cash value takes over as the reserve. From this duration forward, the underlying valuation mortality table does not affect the reserve, so the statutory reserves based on the proposed 2001 CSO Table equal the statutory reserves based on the 1980 CSO Table.

Overall Effect of the Proposed 2001 CSO Table on Reserves

The following analysis compares reserves calculated using the proposed ultimate 2001 CSO Table to those calculated using the ultimate 1980 CSO Table. Deficiency reserves were not considered. CRVM reserves for individual cells were weighted using a relatively simple model office (consisting of three plans, five ages, and both genders), based on industry business distributions obtained from LIMRA International (see Appendix D for a description of the model office). To produce a single number for comparison, we assumed that sales levels increased at 5 percent per year and we focused our analysis on results after 10 and 20 years. Additional detail on this analysis is given in Appendix E.

Table 1
Comparison of Basic Reserves on the Proposed 2001 CSO Table
to Basic Reserves on the 1980 CSO Table
(aggregated results)

	<u>After</u> <u>10 years</u>	<u>After</u> <u>20 years</u>
Overall	79.0%	82.4%
Gender		
Male	76.5%	80.2%
Female	85.6%	87.7%
Plan		
Whole Life	85.6%	86.9%
20 Year Level Premium Term	68.4%	68.7%
Level Premium to Zero UL	95.0%	98.8%
Age		
25	80.9%	84.9%
35	74.8%	79.8%
45	78.7%	82.5%
55	79.8%	81.9%
65	81.2%	84.2%

This table shows that overall basic reserves are about 20 percent lower under the proposed table. The reduction is larger for males than for females, reflecting the larger reduction in mortality rates for males. Term insurance exhibits the largest reductions, followed by whole life. The level premium to zero UL plan shows the smallest reductions because reserves cannot be less than cash values and the cash value determines the reserve, typically by the 6th to 8th duration, under both the old and new tables. When the cash value determines the reserve, reserves are the same under either table. At age 35, the biggest reductions will be seen, while at ages 25 and 65, the smallest reductions will be seen.

Loading Analysis

The Academy Task Force analyzed the percentage of extra deaths produced by the formula in 25 different cells (policy years 1-10, 1-20, 1-30, 1-40 and 1-50 for issue ages 25, 35, 45, 55 and 65). Survivorship was based on the composite, ultimate VBT. As anticipated, the percentage of extra deaths produced by the loading formula varied by cell. The tables below show the increase in the number of deaths produced by the loading formula for each of the 25 cells considered, as well as a weighted average by age for each of the policy year groupings.

Table 2a
Increase in Number of Deaths Produced by the 2001 VBT Loading
Formula For Composite, Ultimate, Male Mortality

Policy Years	Issue Age					Weighted Average
	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	
1-10	17%	22%	18%	13%	11%	18%
1-20	20%	19%	15%	11%	10%	17%
1-30	19%	15%	12%	10%	9%	14%
1-40	16%	13%	11%	10%	10%	12%
1-50	13%	11%	10%	10%	10%	11%

Table 2b
Increase in Number of Deaths Produced by the 2001 VBT Loading
Formula For Composite, Ultimate, Female Mortality

Policy Years	Issue Age					Weighted Average
	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	
1-10	28%	27%	21%	15%	13%	23%
1-20	27%	22%	16%	13%	12%	20%
1-30	23%	17%	14%	12%	11%	17%
1-40	18%	15%	12%	11%	11%	14%
1-50	15%	13%	11%	11%	11%	13%

While perhaps a more common method of measuring extra mortality may be to simply compare the mortality rates for any given issue age and duration, the increase in the number of deaths was used because it takes into consideration the cumulative extra mortality over a given number of policy durations. This is a logical way to view extra mortality for valuation purposes since current statutory valuation rules require life insurance reserves to be determined under the assumption that (as long as the insured survives) the policy will remain in force until it expires.

The Academy Task Force also considered the impact of the loading formula on select and ultimate mortality. The increase in the number of deaths produced by the loading formula for select and ultimate mortality is shown in the following two tables.

Table 2c
Increase in Number of Deaths Produced by the 2001 VBT Loading
Formula For Composite, Select & Ultimate, Male Mortality

Policy Years	Issue Age					Weighted Average
	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	
1-10	28%	33%	28%	23%	19%	28%
1-20	25%	23%	17%	14%	12%	20%
1-30	21%	16%	13%	11%	11%	15%
1-40	16%	13%	11%	10%	11%	13%
1-50	13%	11%	10%	10%	11%	11%

Table 2d
Increase in Number of Deaths Produced by the 2001 VBT Loading
Formula For Composite, Select & Ultimate, Female Mortality

Policy Years	Issue Age					Weighted Average
	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	
1-10	42%	45%	30%	26%	23%	36%
1-20	32%	26%	19%	16%	14%	23%
1-30	25%	18%	15%	13%	12%	18%
1-40	18%	15%	13%	12%	12%	14%
1-50	15%	13%	12%	12%	12%	13%

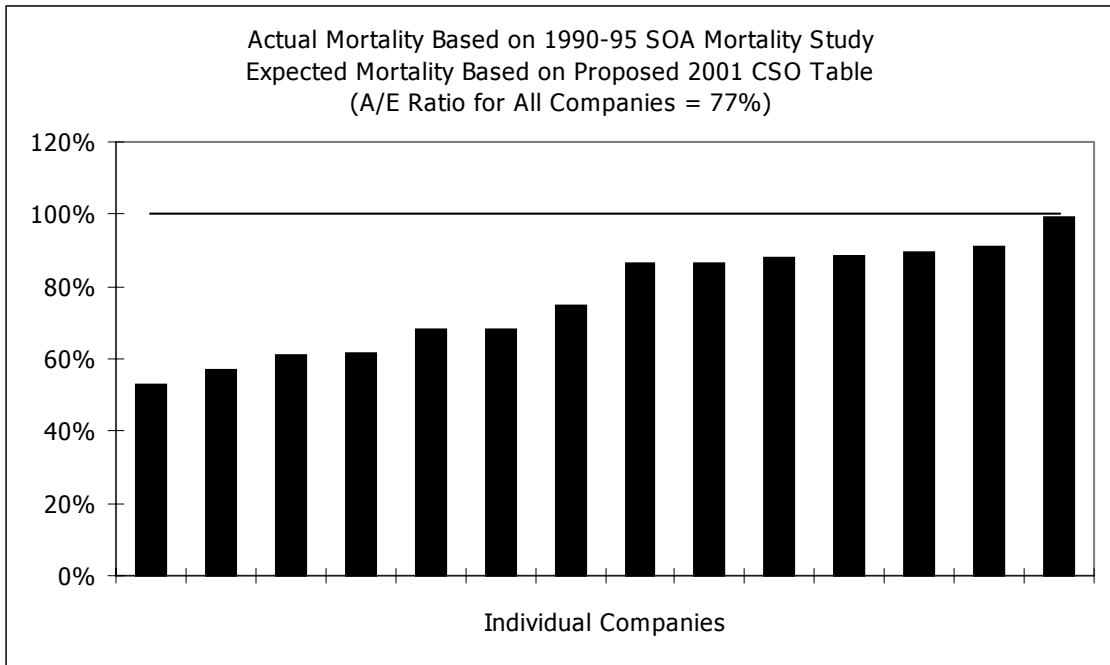
Note, the percentages in Tables 2a - 2d generally decrease as the number of policy years considered increases. This occurs because, while the absolute load added to the 2001 VBT increases with age, the percentage load generally decreases with age (see the comparison of the proposed 2001 CSO Table to the 2001 VBT in Appendix B). As the number of policy years considered in Tables 2a-2d increases, so does the attained age of the insured. Thus, as more policy durations are considered, more older ages are considered. Since the percentage loads decrease with age, one would also expect the percentages in Tables 2a-2d to decrease as the number of policy years considered increases.

Select Period Actual to Expected Ratio Analysis by Company

Since the loading formula was developed using ultimate mortality, the Academy Task Force felt that additional analysis of the load during the select period was needed to verify the appropriateness of the loading formula. As a result, breakdowns of the underlying mortality experience were obtained by company, by policy duration, and by age during the select period.

Of the companies that contributed data to the SOA's 1990-95 study, 14 had data during the entire select period (i.e., policy years 1-25). Actual to expected mortality ratios were calculated for these 14 companies, with expected mortality based on the proposed 2001 CSO Table. For all issue ages, both genders, both smoking statuses, and all select period durations combined, each of the 14 companies had actual to expected ratios less than 100 percent (see Chart 3a below).

Chart 3a
 Actual to Expected Ratios by Company
 M & F, NS & SM, All Issue Ages



When the mortality data is split by gender and smoking status, the individual company actual to expected ratios are usually less than 100 percent, but there are a few exceptions. Specifically, of the 14 companies, 3 have actual to expected ratios above 100 percent for male smokers, 1 has an actual to expected ratio above 100 percent for female nonsmokers, and 4 have actual to expected ratios above 100 percent for female smokers (see Charts 3b, 3c, 3d, and 3e below).

Chart 3b
 Actual to Expected Ratios by Company
 Male, Nonsmoker, All Issue Ages



Chart 3c
 Actual to Expected Ratios by Company
 Male, Smoker, All Issue Ages

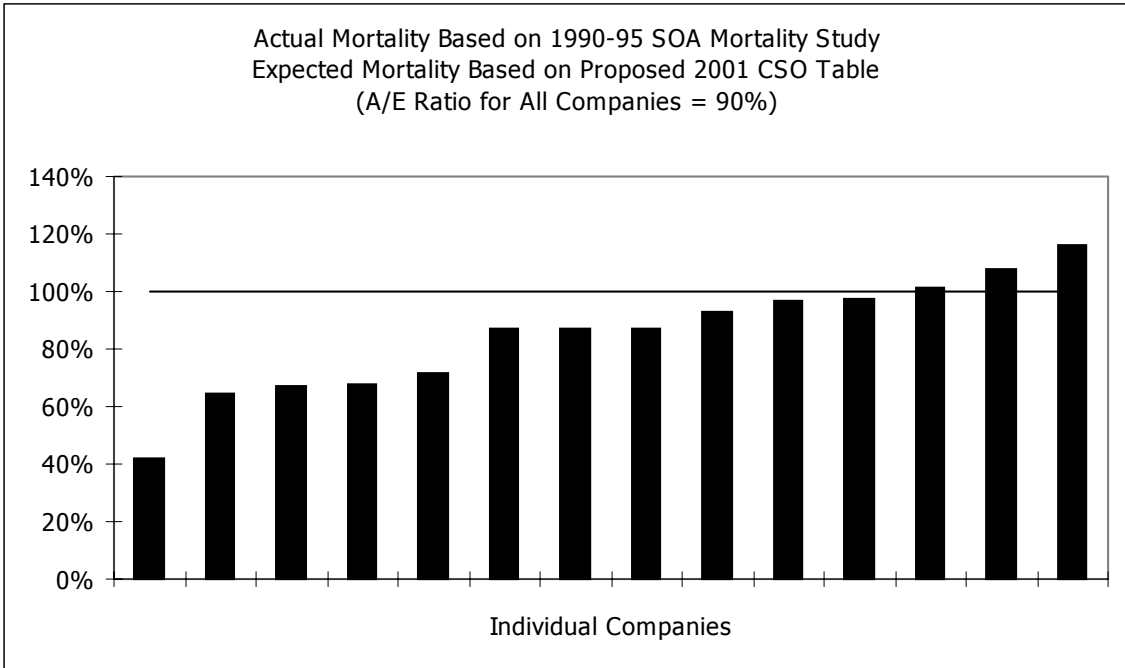


Chart 3d
 Actual to Expected Ratios by Company
 Female, Nonsmoker, All Issue Ages

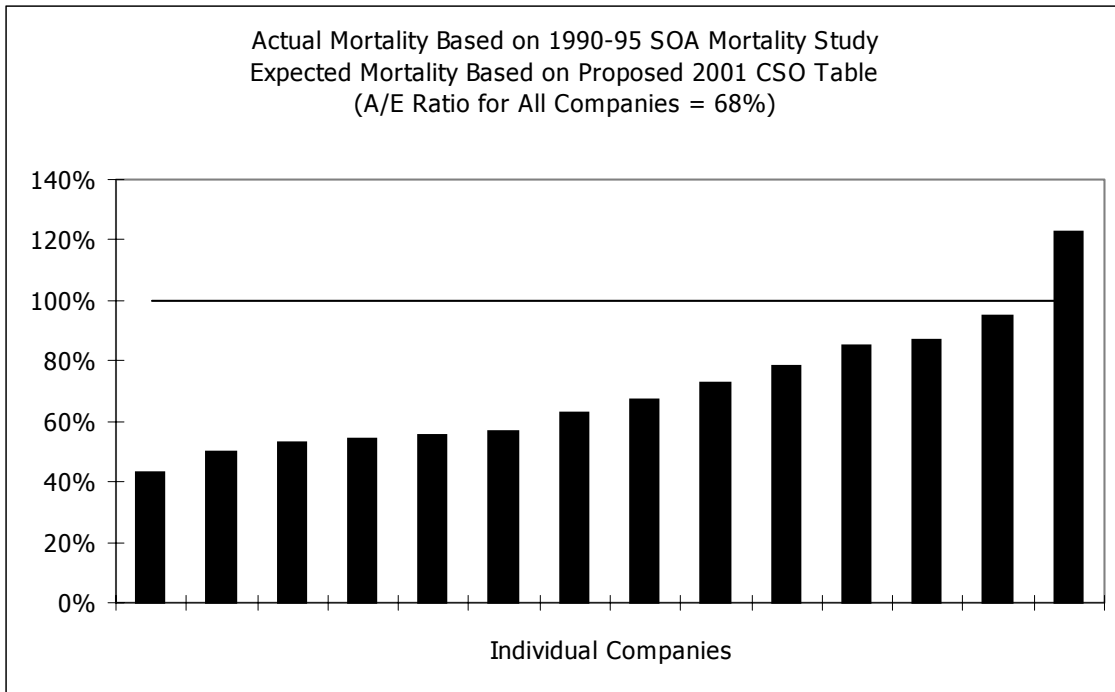
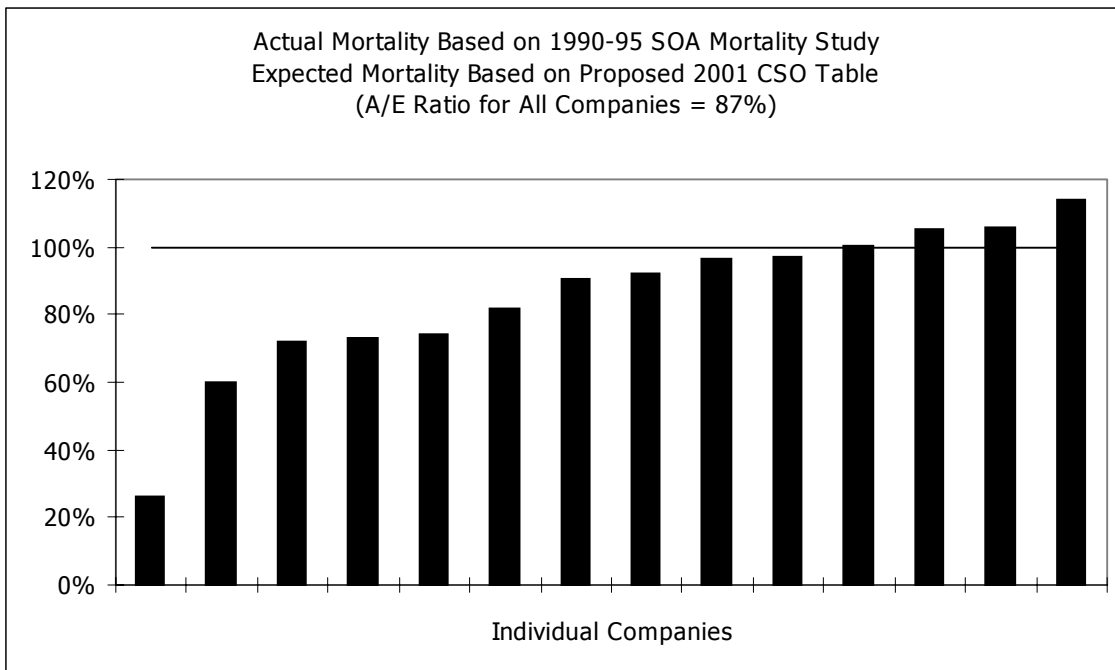


Chart 3e
 Actual to Expected Ratios by Company
 Female, Smoker, All Issue Ages



All of the actual to expected ratios contained in Charts 3a – 3e above are shown in Appendix F.

As a result of these analyses, the Academy Task Force concluded that the proposed 2001 CSO Table mortality will exceed the SOA individual company mortality experience of the individual companies contributing to the SOA experience study most of the time during the select period. Based on this conclusion, the Academy Task Force believes that the level of the loads in the proposed 2001 CSO Table is appropriate during the select period.

Analysis of Margins in Statutory Reserves and Net Premiums

In addition to the analysis of the level of the loads during the select period, the Academy Task Force also examined the appropriateness of various statutory reserve and net premium relationships based on the select period mortality. In particular, the Academy Task Force examined the margins in the reserves and net premiums by gender (male v. female), by smoking status (nonsmoker v. smoker), and by issue age (25 v. 35 v. 45 v. 55 v. 65) for a 20 year level premium term policy using the proposed select and ultimate 2001 CSO Table mortality. The Academy Task Force chose this representative term plan since term reserves and net premiums are more sensitive to the mortality assumptions than whole life or universal life reserves and net premiums.

Appendix G contains many graphs that compare statutory reserve and beta net premium percent margins and dollar margins per \$1,000. The graphs on pages G1 – G12 compare the margins by gender, with the percent margin on the left hand scale and the dollar margin per \$1,000 on the right hand scale. In general, the margins for males are larger than the margins for females on a dollar basis, but less on a percent basis. Since the female mortality rates and reserves are less than the male rates, it is not surprising that the percent margins for females generally exceed those for males (the smaller denominator causes larger percentage). Likewise, it is not surprising that the dollar margins for females are generally less than those for males (females have a higher life expectancy, which results in a smaller mortality load and smaller reserve and net premium margins).

The graphs on pages G13 – G24 compare the margins by smoking status, again with the percent margin on the left hand scale and the dollar margin per \$1,000 on the right hand scale. Similar to the relationship between males and females, the margins for smokers are generally larger than the margins for nonsmokers on a dollar basis, but less on a percent basis. The same explanation used above for males and females can be used for smokers and nonsmokers if smokers are substituted for males and nonsmokers are substituted for females.

The graphs on pages G25 – G34 compare the margins by issue age. In general, the reserve and net premium margins for higher issue ages are larger than the margins for lower issue ages on a dollar basis, but less on a percent basis. Like gender and smoking status above, the differences are due to the mortality levels and life expectancies at the various issue ages.

The Academy Task Force concluded that the relationships in the level of reserve and net premium margins between genders and the various issue ages is appropriate. However, the Academy Task Force determined that more analysis was needed to validate the relationship in reserve and net premium margins between smokers and nonsmoker was appropriate. This additional analysis took the form of a discussion of the purpose of mortality loads, as well as the development of an alternative loading formula to demonstrate the feasibility of the reserve and net premium relationships between smokers and nonsmokers (see Appendix H).

Reserve Analysis

The proposed 2001 CSO Table was constructed so the number of expected tabular deaths exceeds the number of actual deaths during the 1990-95 study period for 71 percent of the companies that participated in the study. However, the Academy Task Force also reviewed reserves produced by the proposed 2001 CSO Table. This reserve analysis is covered in detail in Appendix I.

The comparison reserves used in this analysis were set using a 1-year preliminary term reserve calculation involving interest, mortality and, for term insurance, lapse. These assumptions were based on industry statistics*, and the tests were done to simulate the experience of companies that are at approximately the 85th percentile in terms of experience. In other words, only 15 percent of companies have experience worse than that covered by these tests. Testing was done using the ultimate composite table.

* Mortality is based on 1990-95 SOA study. Interest is based on 12/31/00 yield curve, NAIC C3 model, and 1995-99 NAIC investment returns. Lapse rate data was obtained from the LIMRA International study, "1993-94 United States Lapses by Duration and Product Line: Long Term Ordinary Lapse Survey", copyright ©1996 LIMRA International.

Two forms of analysis were performed. The first compared statutory reserves produced by the proposed table for individual cells to the comparison reserves produced, as outlined above. The second was a sensitivity test determining how much experience needed to change for one assumption (holding the others constant at the 85th percentile level) to produce comparison reserves that were equal to the statutory reserves produced by the proposed table. This second test was done at the plan of insurance level for term and whole life.

The model office is described in Appendix D. The analysis showed that the proposed 2001 CSO Table produces statutory reserves that are greater than the comparison reserves for term insurance and slightly under the comparison reserves for whole life. For level premium to zero UL, the new table produces reserves slightly over the comparison reserves. The following table summarizes these results:

Table 3
Comparison of Statutory Reserves Using the Proposed 2001 CSO Table
to Comparison Reserves
All Ages, Both Genders

	<u>After 10 years</u>	<u>After 20 years</u>
Whole Life*	96.5%	96.6%
Term	105.1%	100.8%
Level Premium to Zero UL	111.5%	103.4%
All Plans	102.2%	99.3%

The Academy Task Force also considered other forms of UL, including higher and lower premium forms of basic UL and forms with “no lapse” guarantees. Under any one of these forms, statutory reserves produced by the proposed 2001 CSO Table should be greater than or equal to their comparison reserves, at least when aggregated at the plan level using the model office outlined in Appendix D.

The testing also showed how experience for individual factors could vary and still produce comparison reserves that are less than statutory reserves. This test is summarized in the following table:

* Changing the lapse assumption from 0 percent per year to 4 percent per year, and determining cash values based on a reserve calculation with an interest rate 1 percent higher than the valuation rate, results in 100 percent after both 10 and 20 years.

Table 4
Percentiles of Individual Assumptions Necessary, with Others Kept at the 85 Percentile Level, to Produce Comparison Reserves Equal to Statutory Reserves After 20 Years

	Mortality		Interest		Lapse	
	<u>Value</u>	<u>Pct'ile</u>	<u>Value</u>	<u>Pct'ile</u>	<u>Value</u>	<u>Pct'ile</u>
Whole Life 20 Year Level	110%	69.1%	4.80%	81.4%	3.90%	85.9%
Premium Term	121%	85.3%	4.10%	87.3%	3.50%	91.5%

As an example, consider whole life. As shown in Table 3, the ratio of statutory reserves to the comparison reserves for whole life is about 96.5 percent. In order to increase this ratio to 100 percent, while holding the interest and lapse assumptions constant (4.50 percent interest and no lapses), the mortality assumption must be reduced from 120 percent of the 2001 VBT (the 85th percentile) to 110 percent of the 2001 VBT (the 69th percentile). Likewise, holding the mortality and lapse assumptions constant (120 percent of the 2001 VBT and no lapses), the interest assumption needs to be increased from 4.50 percent (the 85th percentile) to 4.80 percent (the 81st percentile), in order for the statutory reserves to equal or exceed the comparison reserves. Finally, holding mortality at 120 percent of the 2001 VBT and interest at 4.50 percent, requires a lapse rate assumption of 3.9 percent (less than that used for term insurance) for the statutory reserves to be at least as big as the comparison reserves.

For term, the proposed 2001 CSO Table produces reserves that can handle a small increase in mortality or decrease in lapse rates. In this analysis, term reserves are relatively insensitive to changes in interest rates.

Recommendation

The American Academy of Actuaries' CSO Task Force believes that this report is responsive to the NAIC request for a new valuation table to be used in the current valuation system. We recommend that the proposed 2001 CSO Table shown in this report be adopted for use as a valuation table to replace the 1980 CSO Table. The new table is more consistent with current experience and will result in reserves excluding deficiency reserves that overall are approximately 20 percent lower than those produced by the 1980 CSO Table.

Appendices

Appendix A – 2001 Valuation Basic Table and Proposed 2001 CSO Table

Appendix B – Mortality Comparisons

Appendix C – Statutory Reserve Comparisons

Appendix D – Model Office

Appendix E – Analysis of Impact on Overall Reserves

Appendix F – Select Period Actual to Expected Ratios by Company

Appendix G – Reserve and Net Premium Margins

Appendix H – Loading Validation

Appendix I – Reserve Analysis

Appendix J – Gender-Blended Tables

Appendix K – Society of Actuaries Draft Report on Valuation Basic Table

2001 Valuation Basic Table -- Male -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
47	0.82	1.06	1.31	1.62	2.02	2.47	2.99	3.55	4.09	4.75	5.43	6.16	6.78	7.53	8.63	9.85	11.14	12.43	13.69	14.93	16.08	17.69	19.79	22.37	25.15	28.38	72
48	0.89	1.14	1.43	1.77	2.18	2.66	3.23	3.85	4.47	5.23	5.88	6.63	7.36	8.35	9.66	11.04	12.39	13.67	14.87	15.99	17.51	19.58	22.15	25.15	28.10	31.43	73
49	0.94	1.25	1.58	1.95	2.37	2.87	3.48	4.18	4.83	5.58	6.33	7.20	8.18	9.35	10.80	12.30	13.60	14.81	15.91	17.33	19.38	21.92	24.89	28.10	31.12	34.61	74

2001 Valuation Basic Table -- Male -- Nonsmoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
0																										0.86	25		
1																0.63	0.66	0.77	0.83	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.89	26	
2															0.60	0.70	0.78	0.83	0.84	0.85	0.85	0.85	0.85	0.86	0.88	0.93	27		
3															0.68	0.76	0.82	0.84	0.85	0.85	0.85	0.85	0.86	0.87	0.90	0.91	28		
4															0.58	0.68	0.76	0.82	0.85	0.85	0.85	0.85	0.87	0.88	0.88	0.88	29		
5																													
6															0.57	0.68	0.76	0.82	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	30	
7															0.68	0.76	0.82	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	31	
8															0.57	0.68	0.76	0.82	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	32	
9															0.76	0.81	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.84	33	
10															0.56	0.68	0.76	0.82	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.85	34	
11															0.56	0.67	0.76	0.80	0.80	0.80	0.80	0.80	0.83	0.83	0.84	0.85	0.87	35	
12															0.56	0.67	0.76	0.79	0.79	0.79	0.80	0.81	0.83	0.83	0.83	0.83	0.87	36	
13															0.56	0.67	0.76	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.91	37	
14															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.91	38	
15															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.95	39	
16															0.56	0.67	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	1.02	40	
17															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.09	41	
18															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.16	42	
19															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.26	43	
20															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.39	44	
21															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.53	45	
22															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.71	46	
23															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	1.91	47	
24															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	2.10	48	
25															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	2.31	49	
26															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	2.55	50	
27															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	2.84	51	
28															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	3.18	52	
29															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	3.58	53	
30															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	4.04	54	
31															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	4.57	55	
32															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	5.18	56	
33															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	5.85	57	
34															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	6.59	58	
35															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	7.43	59	
36															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	8.38	60	
37															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	9.44	61	
38															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	10.61	62	
39															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	11.91	63	
40															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	13.34	64	
41															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	14.88	65	
42															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	16.53	66	
43															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	18.31	67	
44															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	20.22	68	
45															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	22.24	69	
46															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	24.38	70	
47															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	26.64	71	
48															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	29.01	72	
49															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	31.49	73	
50															0.56	0.67	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	34.09	74	

2001 Valuation Basic Table -- Male -- Smoker -- 1000qx

Issue Age	Duration																									Att Age						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		Ultimate					
0																	0.70	0.88	1.01	1.11	1.17	1.22	1.28	1.34	1.41	1.49	25					
1																0.67	0.84	0.99	1.08	1.15	1.22	1.28	1.34	1.41	1.49	1.57	26					
2															0.64	0.80	0.95	1.07	1.15	1.22	1.28	1.34	1.41	1.49	1.56	1.66	27					
3																		0.62	0.78	0.93	1.06	1.14	1.22	1.28	1.34	1.41	1.49	28				
4																	0.62	0.78	0.93	1.06	1.14	1.22	1.28	1.34	1.41	1.49	1.57	29				
5																		0.61	0.78	0.93	1.06	1.14	1.22	1.28	1.34	1.41	1.49	30				
6																0.61	0.78	0.93	1.06	1.14	1.22	1.27	1.33	1.41	1.49	1.51	1.57	31				
7															0.61	0.78	0.93	1.06	1.14	1.20	1.27	1.31	1.39	1.47	1.49	1.51	1.53	32				
8																0.60	0.78	0.93	1.05	1.13	1.19	1.25	1.30	1.38	1.46	1.49	1.51	1.53	33			
9															0.60	0.78	0.93	1.05	1.13	1.19	1.24	1.29	1.35	1.44	1.49	1.51	1.53	1.55	34			
10																	0.60	0.77	0.93	1.05	1.13	1.18	1.22	1.27	1.35	1.42	1.49	1.51	1.53	35		
11																	0.60	0.77	0.93	1.03	1.11	1.16	1.21	1.26	1.33	1.41	1.48	1.51	1.53	36		
12																	0.60	0.77	0.93	1.03	1.10	1.15	1.20	1.24	1.32	1.41	1.48	1.51	1.53	1.57	37	
13																	0.60	0.77	0.93	1.02	1.09	1.14	1.18	1.23	1.30	1.38	1.46	1.51	1.53	1.57	38	
14																0.60	0.77	0.93	1.02	1.08	1.12	1.17	1.21	1.27	1.36	1.44	1.51	1.53	1.55	1.59	39	
15																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	40
16																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	41
17																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	42
18																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	43
19																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	44
20																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	45
21																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	46
22																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	47
23																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	48
24																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	49
25																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	50
26																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	51
27																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	52
28																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	53
29																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	54
30																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	55
31																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	56
32																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	57
33																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	58
34																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	59
35																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	60
36																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	61
37																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	62
38																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	63
39																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	64
40																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	65
41																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	66
42																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	67
43																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	68
44																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	69
45																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	70
46																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	71
47																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	72
48																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	73
49																		0.60	0.77	0.93	1.01	1.05	1.09	1.14	1.18	1.24	1.31	1.38	1.45	1.50	1.55	74

2001 Valuation Basic Table -- Female -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
0	0.41	0.28	0.19	0.13	0.12	0.12	0.12	0.14	0.14	0.14	0.15	0.16	0.20	0.23	0.26	0.28	0.31	0.33	0.35	0.37	0.38	0.39	0.40	0.40	0.41	0.42	0.42	25
1	0.28	0.19	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.14	0.16	0.20	0.21	0.25	0.28	0.30	0.32	0.34	0.36	0.38	0.39	0.40	0.40	0.41	0.42	0.44	0.44	26
2	0.19	0.12	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.14	0.18	0.20	0.25	0.27	0.29	0.32	0.34	0.36	0.37	0.39	0.40	0.40	0.41	0.42	0.44	0.47	0.47	27
3	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.17	0.18	0.24	0.27	0.29	0.31	0.33	0.35	0.37	0.38	0.39	0.40	0.41	0.42	0.44	0.47	0.49	0.49	28
4	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.14	0.16	0.18	0.24	0.26	0.29	0.31	0.33	0.34	0.36	0.38	0.39	0.40	0.41	0.42	0.44	0.47	0.49	0.52	0.52	29
5	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.15	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	0.37	0.39	0.40	0.41	0.42	0.44	0.47	0.49	0.52	0.53	0.53	30
6	0.12	0.12	0.12	0.12	0.12	0.13	0.15	0.18	0.22	0.26	0.28	0.30	0.32	0.33	0.35	0.37	0.38	0.40	0.41	0.42	0.44	0.47	0.49	0.52	0.53	0.57	0.57	31
7	0.12	0.12	0.12	0.12	0.12	0.15	0.17	0.22	0.26	0.28	0.29	0.31	0.33	0.34	0.36	0.38	0.39	0.41	0.42	0.44	0.47	0.49	0.52	0.53	0.57	0.60	0.60	32
8	0.12	0.12	0.12	0.12	0.13	0.17	0.20	0.25	0.27	0.29	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.47	0.49	0.52	0.53	0.57	0.60	0.64	0.64	33
9	0.12	0.12	0.12	0.13	0.15	0.20	0.25	0.27	0.28	0.30	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.49	0.52	0.53	0.57	0.60	0.64	0.69	0.69	34
10	0.12	0.12	0.13	0.15	0.18	0.24	0.26	0.28	0.29	0.31	0.32	0.34	0.36	0.37	0.39	0.41	0.43	0.46	0.49	0.52	0.53	0.57	0.60	0.64	0.69	0.76	0.76	35
11	0.12	0.13	0.15	0.18	0.24	0.25	0.27	0.29	0.30	0.32	0.33	0.35	0.37	0.38	0.41	0.43	0.45	0.48	0.52	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.81	36
12	0.13	0.15	0.18	0.24	0.25	0.26	0.28	0.29	0.31	0.32	0.34	0.36	0.38	0.40	0.42	0.45	0.48	0.51	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.88	0.88	37
13	0.15	0.18	0.24	0.25	0.26	0.27	0.28	0.30	0.31	0.33	0.35	0.37	0.39	0.42	0.44	0.48	0.51	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.87	0.92	0.92	38
14	0.18	0.24	0.25	0.26	0.26	0.27	0.29	0.30	0.32	0.33	0.36	0.38	0.41	0.44	0.47	0.51	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	0.97	39
15	0.24	0.25	0.26	0.26	0.27	0.28	0.29	0.30	0.32	0.34	0.37	0.40	0.43	0.46	0.50	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	1.02	1.02	40
16	0.25	0.26	0.26	0.26	0.27	0.28	0.29	0.31	0.33	0.35	0.38	0.42	0.45	0.49	0.53	0.57	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	1.02	1.08	1.08	41
17	0.26	0.26	0.26	0.26	0.27	0.28	0.30	0.32	0.34	0.37	0.40	0.44	0.48	0.52	0.57	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	1.02	1.08	1.16	1.16	42
18	0.25	0.25	0.25	0.26	0.27	0.28	0.30	0.33	0.36	0.39	0.43	0.47	0.51	0.56	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	1.02	1.08	1.16	1.25	1.25	43
19	0.24	0.24	0.25	0.26	0.27	0.29	0.31	0.34	0.38	0.41	0.46	0.50	0.55	0.60	0.64	0.69	0.76	0.81	0.86	0.91	0.97	1.02	1.08	1.16	1.25	1.36	1.36	44
20	0.22	0.23	0.24	0.25	0.27	0.30	0.33	0.36	0.40	0.44	0.49	0.54	0.59	0.64	0.69	0.75	0.80	0.86	0.91	0.97	1.02	1.08	1.16	1.25	1.36	1.49	1.49	45
21	0.20	0.21	0.23	0.25	0.28	0.31	0.35	0.38	0.43	0.47	0.52	0.57	0.62	0.68	0.73	0.79	0.84	0.90	0.96	1.02	1.08	1.16	1.25	1.36	1.49	1.64	1.64	46
22	0.18	0.20	0.23	0.26	0.29	0.33	0.37	0.41	0.46	0.51	0.56	0.61	0.66	0.72	0.77	0.83	0.89	0.95	1.01	1.08	1.16	1.25	1.36	1.49	1.64	1.83	1.83	47
23	0.16	0.19	0.22	0.26	0.30	0.34	0.39	0.44	0.49	0.54	0.59	0.65	0.70	0.76	0.81	0.87	0.93	1.00	1.08	1.16	1.25	1.36	1.49	1.64	1.83	2.04	2.04	48
24	0.15	0.19	0.23	0.27	0.31	0.36	0.41	0.46	0.52	0.57	0.63	0.68	0.74	0.79	0.85	0.92	0.98	1.06	1.15	1.25	1.36	1.49	1.64	1.83	2.04	2.28	2.28	49
25	0.14	0.19	0.23	0.28	0.33	0.38	0.44	0.49	0.55	0.60	0.66	0.71	0.77	0.83	0.89	0.97	1.04	1.13	1.24	1.36	1.49	1.64	1.83	2.04	2.28	2.55	2.55	50
26	0.14	0.19	0.24	0.29	0.34	0.40	0.46	0.51	0.57	0.63	0.69	0.74	0.81	0.87	0.94	1.02	1.12	1.22	1.35	1.49	1.64	1.83	2.04	2.28	2.55	2.85	2.85	51
27	0.15	0.20	0.25	0.30	0.36	0.42	0.47	0.53	0.59	0.65	0.71	0.77	0.84	0.92	1.00	1.10	1.21	1.33	1.48	1.64	1.83	2.04	2.28	2.55	2.85	3.19	3.19	52
28	0.16	0.21	0.26	0.32	0.37	0.43	0.49	0.55	0.61	0.67	0.74	0.81	0.89	0.97	1.07	1.19	1.31	1.46	1.63	1.82	2.04	2.28	2.55	2.85	3.19	3.56	3.56	53
29	0.17	0.23	0.28	0.33	0.39	0.45	0.50	0.57	0.63	0.70	0.77	0.85	0.94	1.04	1.16	1.29	1.45	1.62	1.81	2.03	2.28	2.55	2.85	3.19	3.56	3.95	3.95	54
30	0.19	0.24	0.29	0.35	0.40	0.46	0.52	0.58	0.65	0.73	0.81	0.90	1.01	1.13	1.27	1.42	1.60	1.80	2.02	2.27	2.55	2.85	3.19	3.56	3.95	4.37	4.37	55
31	0.21	0.26	0.31	0.36	0.42	0.48	0.54	0.61	0.68	0.77	0.86	0.97	1.10	1.24	1.40	1.58	1.78	2.01	2.26	2.54	2.85	3.19	3.56	3.95	4.37	4.85	4.85	56
32	0.22	0.27	0.32	0.38	0.43	0.50	0.57	0.64	0.73	0.83	0.94	1.07	1.21	1.37	1.56	1.76	1.99	2.24	2.52	2.83	3.17	3.55	3.95	4.37	4.85	5.36	5.36	57
33	0.23	0.28	0.33	0.39	0.46	0.53	0.61	0.69	0.79	0.91	1.04	1.18	1.35	1.53	1.74	1.97	2.22	2.50	2.81	3.15	3.53	3.93	4.37	4.84	5.36	5.91	5.91	58
34	0.23	0.28	0.34	0.41	0.48	0.56	0.65	0.76	0.87	1.00	1.15	1.32	1.51	1.71	1.94	2.20	2.48	2.79	3.13	3.50	3.91	4.34	4.82	5.32	5.87	6.44	6.44	59
35	0.23	0.29	0.35	0.43	0.51	0.61	0.72	0.84	0.97	1.12	1.29	1.48	1.69	1.92	2.17	2.46	2.77	3.11	3.48	3.88	4.32	4.79	5.29	5.83	6.40	7.00	7.00	60
36	0.23	0.30	0.37	0.46	0.55	0.66	0.79	0.93	1.08	1.25	1.44	1.65	1.89	2.14	2.43	2.74	3.08	3.45	3.85	4.28	4.75	5.26	5.79	6.36	6.96	7.60	7.60	61
37	0.24	0.31	0.39	0.49	0.60	0.73	0.87	1.03	1.20	1.40	1.61	1.85	2.10	2.39	2.70	3.04	3.41	3.81	4.25	4.72	5.22	5.76	6.33	6.93	7.57	8.24	8.24	62
38	0.25	0.33	0.42	0.53	0.66	0.80	0.96	1.14	1.34	1.55	1.79	2.05	2.34	2.65	2.99	3.37	3.77	4.21	4.68	5.18	5.72	6.29	6.90	7.54	8.21	8.91	8.91	63
39	0.27	0.36	0.46	0.59	0.73	0.89	1.07	1.27	1.48	1.73	1.99	2.28	2.59	2.94	3.31	3.72	4.16	4.63	5.14	5.68	6.26	6.87	7.51	8.19	8.90	9.64	9.64	64
40	0.30	0.40	0.52	0.66	0.81	0.99	1.19	1.41	1.65	1.91	2.20	2.52	2.87	3.25	3.66	4.10	4.58	5.09	5.63	6.22	6.83	7.49	8.17	8.89	9.64	10.44	10.44	65
41	0.34	0.45	0.59	0.74	0.91	1.11	1.32	1.56	1.83	2.12	2.44	2.79	3.17	3.58	4.03	4.51	5.03	5.58	6.17	6.80	7.46	8.16	8.89	9.64	10.44	11.31	11.31	66
42	0.38	0.52	0.67	0.84	1.03	1.24	1.48	1.74	2.03	2.35	2.69	3.08	3.49	3.94	4.43	4.95	5.51	6.11	6.75	7.42	8.14	8.89	9.64	10.44	11.31	12.27	12.27	67
43	0.44	0.59	0.76	0.95	1.17	1.40	1.66	1.95	2.26	2.60	2.98	3.39	3.84	4.33	4.86	5.43	6.04	6.69	7.38	8.11	8.87	9.64	10.44	11.31	12.27	13.33	13.33	68
44	0.50	0.67	0.87	1.09	1.32	1.58	1.86	2.17	2.51	2.88	3.29	3.73	4.22	4.75	5.32	5.94	6.60	7.31	8.06	8.85	9.64	10.44	11.31	12.27	13.33	14.49	14.49	69
45	0.57	0.77	0.99	1.23	1.49	1.78	2.08	2.42	2.79	3.19	3.62	4.10	4.63	5.20	5.81	6.48	7.21	7.98	8.79	9.64	10.44	11.31	12.27	13.33	14.49	15.80	15.8	

2001 Valuation Basic Table -- Female -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	0.91	1.30	1.67	2.02	2.40	2.81	3.26	3.75	4.28	4.87	5.51	6.22	6.99	7.84	8.77	9.78	10.89	12.09	13.33	14.49	15.80	17.31	18.97	20.74	22.79	24.97	75
51	0.96	1.46	1.82	2.17	2.57	3.00	3.48	4.00	4.58	5.21	5.91	6.68	7.53	8.46	9.48	10.60	11.82	13.16	14.49	15.80	17.31	18.97	20.79	22.79	24.97	27.36	76
52	1.01	1.63	1.97	2.33	2.73	3.18	3.68	4.24	4.87	5.56	6.32	7.16	8.09	9.12	10.25	11.49	12.86	14.35	15.80	17.31	18.97	20.79	22.79	24.97	27.36	29.98	77
53	1.07	1.75	2.13	2.48	2.89	3.36	3.89	4.49	5.16	5.92	6.75	7.68	8.71	9.84	11.10	12.48	14.00	15.68	17.31	18.97	20.79	22.79	24.97	27.36	29.98	32.86	78
54	1.13	1.88	2.29	2.64	3.06	3.55	4.12	4.76	5.48	6.30	7.22	8.25	9.39	10.66	12.06	13.60	15.30	17.18	18.97	20.79	22.79	24.97	27.36	29.98	32.86	36.01	79
55	1.19	2.02	2.47	2.82	3.26	3.77	4.37	5.05	5.84	6.74	7.75	8.89	10.16	11.57	13.14	14.88	16.78	18.88	20.79	22.79	24.97	27.36	29.98	32.86	36.01	39.46	80
56	1.31	2.15	2.66	3.03	3.48	4.02	4.66	5.40	6.26	7.24	8.35	9.61	11.02	12.61	14.37	16.32	18.46	20.79	22.79	24.97	27.36	29.98	32.86	36.01	39.46	44.32	81
57	1.37	2.29	2.87	3.25	3.74	4.32	5.01	5.82	6.75	7.82	9.04	10.44	12.01	13.78	15.75	17.94	20.35	22.79	24.97	27.36	29.98	32.86	36.01	39.46	43.24	49.73	82
58	1.40	2.44	3.08	3.50	4.03	4.67	5.42	6.31	7.33	8.51	9.85	11.39	13.13	15.10	17.30	19.75	22.46	24.97	27.36	29.98	32.86	36.01	39.46	43.24	47.39	55.11	83
59	1.50	2.57	3.31	3.77	4.34	5.05	5.88	6.86	7.99	9.30	10.79	12.49	14.42	16.60	19.05	21.78	24.82	27.36	29.98	32.86	36.01	39.46	43.24	47.39	51.93	61.04	84
60	1.56	2.70	3.53	4.03	4.67	5.46	6.39	7.48	8.74	10.20	11.86	13.75	15.90	18.32	21.04	24.08	27.36	29.98	32.86	36.01	39.46	43.24	47.39	51.93	56.90	67.64	85
61	1.62	2.83	3.74	4.29	5.00	5.88	6.92	8.14	9.57	11.20	13.07	15.19	17.58	20.28	23.31	26.69	29.98	32.86	36.01	39.46	43.24	47.39	51.93	56.90	62.36	73.54	86
62	1.73	2.96	3.95	4.54	5.32	6.30	7.47	8.85	10.46	12.31	14.41	16.80	19.50	22.52	25.90	29.66	32.86	36.01	39.46	43.24	47.39	51.93	56.90	62.36	68.33	82.62	87
63	1.92	3.10	4.14	4.78	5.63	6.72	8.04	9.60	11.42	13.52	15.91	18.61	21.65	25.05	28.83	32.86	36.01	39.46	43.24	47.39	51.93	56.90	62.36	68.33	74.88	92.11	88
64	2.14	3.94	4.35	5.02	5.95	7.16	8.64	10.41	12.47	14.85	17.56	20.63	24.06	27.88	32.11	36.01	39.46	43.24	47.39	51.93	56.90	62.36	68.33	74.88	82.06	102.19	89
65	2.41	4.16	4.56	5.27	6.29	7.63	9.29	11.29	13.63	16.33	19.41	22.87	26.73	31.03	35.77	39.46	43.24	47.39	51.93	56.90	62.36	68.33	74.88	82.06	89.93	111.16	90
66	2.51	4.42	4.81	5.56	6.68	8.17	10.04	12.29	14.94	17.99	21.46	25.37	29.72	34.54	39.46	43.24	47.39	51.93	56.90	62.36	68.33	74.88	82.06	89.93	98.54	115.05	91
67	2.57	4.70	5.09	5.91	7.15	8.82	10.92	13.45	16.43	19.87	23.78	28.16	33.04	38.43	43.24	47.39	51.93	56.90	62.36	68.33	74.88	82.06	89.93	98.54	107.99	123.82	92
68	2.89	5.01	5.44	6.35	7.73	9.60	11.96	14.81	18.16	22.02	26.40	31.30	36.76	42.76	47.39	51.93	56.90	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	137.10	93
69	3.24	5.35	5.85	6.88	8.45	10.55	13.20	16.40	20.15	24.47	29.36	34.83	40.90	47.39	51.93	56.90	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	154.08	94
70	3.63	5.73	6.34	7.53	9.32	11.70	14.68	18.27	22.47	27.28	32.72	38.79	45.50	51.93	56.90	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	175.58	95
71	4.11	6.16	6.92	8.32	10.38	13.08	16.44	20.45	25.13	30.48	36.50	43.21	50.59	56.90	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	195.67	96
72	6.16	6.64	7.61	9.27	11.64	14.71	18.49	22.98	28.18	34.10	40.75	48.12	56.21	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	216.53	97
73	6.64	7.21	8.43	10.41	13.14	16.63	20.87	25.87	31.64	38.18	45.48	53.55	62.36	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	218.32	98
74	7.17	7.91	9.44	11.78	14.92	18.87	23.62	29.18	35.55	42.73	50.73	59.54	68.33	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	228.83	99
75	7.75	8.79	10.68	13.42	17.01	21.46	26.76	32.92	39.93	47.80	56.53	66.12	74.88	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	100
76	8.52	9.91	12.20	15.39	19.47	24.46	30.35	37.13	44.82	53.42	62.92	73.33	82.06	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	101
77	9.59	11.36	14.07	17.74	22.35	27.90	34.41	41.86	50.26	59.62	69.93	81.20	89.93	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	102
78	11.03	13.21	16.37	20.53	25.69	31.84	38.99	47.14	56.28	66.43	77.58	89.74	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	103
79	11.55	15.54	19.17	23.84	29.56	36.33	44.14	53.00	62.92	73.88	85.90	98.54	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	104
80	12.88	18.44	22.54	27.73	34.02	41.42	49.91	59.50	70.19	81.99	94.90	107.99	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	105
81	14.45	21.99	26.55	32.26	39.12	47.14	56.32	66.65	78.13	90.78	104.59	118.34	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	106
82	16.22	26.26	31.26	37.48	44.91	53.55	63.41	74.48	86.76	100.27	114.99	129.68	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	457.63	107
83	17.97	31.26	36.74	43.44	51.42	60.68	71.20	83.01	96.09	110.46	126.10	142.11	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	457.63	492.87	108
84	22.29	36.74	43.03	50.19	58.70	68.55	79.73	92.27	106.14	121.36	137.92	155.73	170.66	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	457.63	492.87	529.51	109
85	26.69	43.03	50.16	57.75	66.76	77.18	89.01	102.25	116.91	132.98	150.47	169.37	187.01	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	457.63	492.87	529.51	566.95	110
86	35.07	50.16	57.75	66.15	75.63	86.60	99.05	112.99	128.41	145.33	163.73	183.62	204.94	224.58	246.10	269.69	295.54	323.87	354.91	388.35	422.59	457.63	492.87	529.51	566.95	603.00	111
87	40.99	57.75	66.15	75.41	85.32	96.81	109.85	124.47	140.65	158.40	177.71	198.60	221.05	245.07	269.69	295.54	323.87	354.91	388.35	422.59	457.63	492.87	529.51	566.95	603.00	638.00	112
88	51.49	66.15	75.41	85.32	95.84	107.81	121.44	136.71	153.63	172.20	192.42	214.30	237.82	263.00	289.82	318.30	348.43	380.22	413.65	448.74	485.48	523.87	563.92	603.00	638.00	670.00	113
89	63.53	75.41	85.32	95.84	107.20	119.63	133.79	149.70	167.35	186.73	207.85	230.72	255.32	281.66	309.73	339.55	371.11	404.40	439.43	476.21	514.72	554.96	596.95	638.00	670.00	714.50	114
90	75.41	85.32	95.84	107.20	119.38	132.24	146.93	163.45	181.81	201.99	224.01	247.86	273.54	301.05	330.39	361.57	394.57	429.40	466.07	504.56	544.89	587.04	631.03	670.00	714.50	756.00	115
91	85.32	95.84	107.20	119.38	132.24	145.66	160.85	177.97	197.01	217.99	240.89	265.73	292.49	321.18	351.80	384.34	418.82	455.22	493.55	533.81	575.99	620.10	666.14	714.10	756.00	799.00	116
92	95.84	107.20	119.38	132.24	145.66	159.89	175.55	193.24	212.96	234.71	258.50	284.31	312.16	342.04	373.95	407.89	443.86	481.86									

2001 Valuation Basic Table -- Female -- Nonsmoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
0																					0.36	0.37	0.38	0.38	0.39	0.39	25
1																0.30	0.32	0.33	0.34	0.36	0.37	0.38	0.38	0.38	0.39	0.41	26
2																0.32	0.33	0.35	0.35	0.37	0.38	0.38	0.38	0.39	0.40	0.44	27
3																	0.29	0.31	0.32	0.32	0.33	0.34	0.35	0.39	0.40	0.45	28
4																	0.29	0.31	0.32	0.33	0.34	0.36	0.37	0.37	0.43	0.48	29
5																											30
6																0.28	0.30	0.31	0.32	0.33	0.35	0.36	0.37	0.38	0.39	0.48	31
7																0.29	0.30	0.32	0.33	0.34	0.36	0.36	0.38	0.39	0.40	0.52	32
8																											33
9																											34
10																											35
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2001 Valuation Basic Table -- Female -- Nonsmoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	0.71	1.03	1.35	1.65	1.99	2.35	2.76	3.20	3.69	4.24	4.84	5.51	6.24	7.06	7.96	8.93	9.99	11.16	12.37	13.50	14.77	16.24	17.83	19.60	21.56	23.75	75
51	0.76	1.16	1.47	1.77	2.13	2.51	2.94	3.42	3.95	4.54	5.20	5.92	6.73	7.63	8.61	9.69	10.87	12.17	13.48	14.77	16.24	17.83	19.60	21.56	23.67	26.10	76
52	0.79	1.30	1.59	1.90	2.26	2.66	3.11	3.62	4.20	4.85	5.56	6.36	7.24	8.23	9.33	10.52	11.84	13.30	14.73	16.24	17.83	19.60	21.56	23.67	26.02	28.69	77
53	0.84	1.39	1.71	2.02	2.39	2.81	3.29	3.84	4.46	5.17	5.95	6.83	7.81	8.90	10.12	11.44	12.94	14.57	16.18	17.83	19.60	21.56	23.67	26.02	28.57	31.55	78
54	0.88	1.49	1.84	2.15	2.53	2.97	3.48	4.07	4.74	5.50	6.37	7.34	8.43	9.65	11.01	12.50	14.15	15.99	17.77	19.58	21.54	23.67	26.02	28.57	31.41	34.64	79
55	0.93	1.60	1.98	2.30	2.69	3.15	3.69	4.32	5.05	5.89	6.84	7.92	9.13	10.49	12.01	13.70	15.56	17.62	19.52	21.54	23.67	26.02	28.57	31.41	34.53	38.08	80
56	1.03	1.72	2.15	2.49	2.89	3.38	3.96	4.64	5.44	6.35	7.40	8.59	9.94	11.48	13.16	15.06	17.17	19.46	21.45	23.65	25.99	28.57	31.41	34.50	37.92	42.85	81
57	1.09	1.85	2.34	2.69	3.13	3.65	4.28	5.03	5.89	6.89	8.04	9.36	10.86	12.57	14.47	16.59	18.97	21.38	23.55	25.96	28.54	31.38	34.50	37.88	41.64	48.24	82
58	1.12	1.98	2.53	2.91	3.39	3.97	4.66	5.48	6.42	7.53	8.79	10.25	11.91	13.82	15.93	18.33	20.98	23.47	25.86	28.51	31.35	34.46	37.88	41.64	45.78	53.57	83
59	1.22	2.10	2.74	3.16	3.68	4.32	5.08	5.98	7.03	8.26	9.66	11.28	13.12	15.22	17.60	20.26	23.23	25.77	28.39	31.32	34.43	37.84	41.60	45.73	50.27	59.45	84
60	1.28	2.23	2.95	3.40	3.98	4.70	5.55	6.56	7.73	9.09	10.66	12.44	14.52	16.85	19.48	22.44	25.66	28.30	31.18	34.39	37.80	41.55	45.73	50.27	55.19	66.09	85
61	1.34	2.35	3.15	3.65	4.29	5.09	6.04	7.17	8.50	10.02	11.79	13.79	16.09	18.70	21.63	24.93	28.18	31.09	34.25	37.72	41.51	45.64	50.22	55.19	60.68	72.00	86
62	1.44	2.49	3.35	3.89	4.60	5.49	6.56	7.83	9.33	11.05	13.04	15.32	17.90	20.83	24.11	27.79	30.95	34.14	37.61	41.42	45.59	50.16	55.14	60.61	66.69	81.13	87
63	1.61	2.63	3.54	4.12	4.90	5.89	7.10	8.54	10.23	12.20	14.45	17.03	19.94	23.22	26.90	30.86	33.99	37.49	41.29	45.49	50.06	55.08	60.55	66.62	73.23	90.64	88
64	1.81	3.37	3.75	4.36	5.21	6.31	7.67	9.30	11.22	13.44	16.01	18.94	22.23	25.90	30.02	33.89	37.33	41.16	45.35	49.90	54.97	60.49	66.55	73.16	80.42	100.76	89
65	2.06	3.58	3.96	4.61	5.54	6.76	8.29	10.14	12.31	14.84	17.76	21.06	24.75	28.92	33.52	37.21	40.99	45.21	49.75	54.79	60.36	66.42	73.08	80.34	88.40	109.94	90
66	2.16	3.84	4.21	4.90	5.93	7.29	9.02	11.11	13.60	16.46	19.74	23.49	27.67	32.36	37.17	40.95	45.16	49.70	54.74	60.30	66.35	73.01	80.34	88.31	97.06	114.02	91
67	2.23	4.11	4.48	5.24	6.39	7.93	9.88	12.24	15.03	18.30	22.02	26.22	30.96	36.20	40.95	45.12	49.70	54.74	60.24	66.28	72.93	80.25	88.22	97.06	106.59	122.83	92
68	2.53	4.41	4.83	5.68	6.96	8.69	10.90	13.57	16.74	20.41	24.60	29.33	34.63	40.49	45.07	49.65	54.68	60.18	66.28	72.93	80.17	88.22	96.96	106.59	117.16	136.28	93
69	2.85	4.75	5.23	6.19	7.66	9.62	12.10	15.14	18.70	22.83	27.54	32.84	38.73	45.07	49.65	54.62	60.18	66.21	72.86	80.17	88.22	96.96	106.59	117.16	128.64	153.46	94
70	3.22	5.12	5.71	6.83	8.50	10.74	13.56	16.97	20.99	25.62	30.85	36.77	43.32	49.65	54.62	60.18	66.21	72.86	80.17	88.13	96.86	106.48	117.04	128.64	141.40	174.88	95
71	3.67	5.55	6.28	7.60	9.54	12.09	15.27	19.12	23.62	28.80	34.64	41.18	48.47	54.62	59.55	65.87	72.63	80.09	88.13	96.86	106.48	116.92	128.51	141.40	155.11	195.08	96
72	5.55	6.02	6.95	8.52	10.77	13.70	17.31	21.62	26.66	32.43	38.92	46.15	54.13	58.93	65.53	72.48	79.93	88.13	96.86	106.48	116.92	128.51	141.26	154.95	170.15	215.88	97
73	6.02	6.59	7.75	9.63	12.25	15.58	19.66	24.50	30.12	36.54	43.71	51.68	58.37	65.19	72.26	79.84	88.13	96.86	106.48	116.92	128.51	141.26	154.95	169.98	186.45	217.88	98
74	6.55	7.28	8.74	10.98	13.99	17.79	22.39	27.81	34.06	41.15	49.06	57.75	64.85	72.03	79.76	88.04	96.77	106.48	116.80	128.38	141.12	154.80	169.98	186.45	204.53	228.37	99
75	7.13	8.14	9.95	12.59	16.06	20.37	25.53	31.60	38.53	46.37	55.00	64.53	71.88	79.68	88.04	96.77	106.48	116.80	128.38	141.12	154.80	169.98	186.45	204.53	224.13	245.85	100
76	7.87	9.21	11.41	14.48	18.44	23.29	29.04	35.72	43.34	51.87	61.28	71.64	79.60	88.04	96.77	106.37	116.80	128.38	140.97	154.80	169.81	186.26	204.33	224.13	245.85	269.42	101
77	8.90	10.60	13.21	16.75	21.21	26.62	33.00	40.35	48.65	58.01	68.25	79.49	87.95	96.77	106.37	116.80	128.25	140.97	154.64	169.81	186.26	204.33	224.13	245.85	269.42	295.54	102
78	10.27	12.36	15.42	19.44	24.46	30.44	37.47	45.54	54.59	64.77	75.80	87.95	96.77	106.37	116.68	128.25	140.83	154.64	169.64	186.26	204.33	224.13	245.61	269.42	295.24	323.87	103
79	10.80	14.61	18.12	22.65	28.20	34.84	42.55	51.30	61.16	72.11	84.10	96.67	106.26	116.68	128.12	140.83	154.48	169.64	186.07	204.33	224.13	245.61	269.42	295.24	323.22	354.91	104
80	12.09	17.41	21.37	26.43	32.56	39.80	48.21	57.72	68.37	80.19	93.00	106.15	116.56	127.99	140.55	154.48	169.47	186.07	204.12	223.91	245.61	269.42	295.24	322.25	354.91	388.35	105
81	13.63	20.82	25.25	30.81	37.56	45.44	54.52	64.78	76.25	88.96	102.71	116.56	127.99	140.55	154.33	169.47	186.07	204.12	223.91	245.61	269.42	295.24	322.25	354.91	388.35	422.59	106
82	15.34	24.95	29.82	35.91	43.20	51.73	61.51	72.54	84.85	98.47	113.15	127.86	140.40	154.33	169.47	185.89	204.12	223.91	245.61	269.42	295.24	321.60	354.91	388.35	422.59	457.63	107
83	17.05	29.79	35.16	41.75	49.62	58.80	69.21	81.02	94.17	108.69	124.33	140.40	154.17	169.29	185.89	204.12	223.91	245.61	269.42	295.24	320.96	354.91	388.35	422.59	457.63	492.87	108
84	21.22	35.12	41.31	48.38	56.76	66.56	77.74	90.33	104.23	119.54	136.13	154.17	169.29	185.89	203.92	223.91	245.61	269.15	295.24	320.31	354.91	388.35	422.59	457.63	492.87	529.51	109
85	25.52	41.27	48.30	55.79	64.76	75.10	86.96	100.31	115.04	131.25	148.81	167.85	185.70	203.92	223.68	245.61	269.15	295.24	319.98	354.91	388.35	422.59	457.63	492.87	529.51	566.95	110
86	33.63	48.25	55.79	64.10	73.51	84.52	97.07	111.07	126.61	143.73	162.26	182.33	203.92	223.68	245.36	269.15	295.24	319.34	354.91	388.35	422.59	457.63	492.87	529.51	566.95	603.00	111
87	39.43	55.73	64.03	73.30	83.19	94.68	107.87	122.60	138.96	156.97	176.47	197.61	220.17	244.33	269.15	295.24	318.69	354.91	388.35	422.16	457.17	492.87	529.51	566.95	603.00	638.00	112
88	49.69	64.03	73.22	83.10	93.73	105.76	119.50	134.93	152.09	170.99	191.27	213.44	237.11	262.47	289.53	318.30	348.43	380.22	413.65	448.74	485.48	523.87	563.92	603.00	638.00	670.00	113
89	61.50	73.22	83.10	93.64	105.06	117.60	131.92	148.05	166.01	185.61	207.02	230.03	254.81	281.38	309.73	339.55	371.11	404.40	439.43	476.21	514.72	554.96	596.95	638.00	670.00	714.50	114
90	73.22	83.10	93.64	105.06	117.23	130.39	145.31	161.98	180.72	201.18	223.34	247.36	273.27	301.05	330.39	361.57	394.57	429.40	466.07	504.56	544.89	587.04	631.03	670.00	714.50	756.00	115
91	83.10	93.64	105.06	117.23	130.26	143.91	159.40	176.72	196.02	217.34	240.41	265.46	292.20	321.18	351.80	384.34	418.82	455.22	493.55	533.81	575.99	620.10	666.14	714.10	756.00	799.00	116
92	93.64	105.06	117.23	130.26	143.91	158.29	174.32	192.27	212.11	234.24	258.24	284.03	312.16	342.04	373.95	407.89	443.86	481.86	521.88	563							

2001 Valuation Basic Table -- Female -- Smoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
0																	0.33	0.37	0.41	0.45	0.48	0.51	0.54	0.56	0.60	0.64	25	
1																0.32	0.36	0.40	0.44	0.48	0.51	0.54	0.56	0.59	0.62	0.67	0.73	26
2															0.31	0.36	0.40	0.44	0.46	0.51	0.54	0.56	0.59	0.62	0.67	0.73	27	
3														0.31	0.38	0.42	0.46	0.49	0.53	0.56	0.59	0.62	0.67	0.72	0.77	0.83	28	
4													0.31	0.34	0.38	0.41	0.45	0.49	0.53	0.56	0.59	0.62	0.67	0.72	0.77	0.83	29	
5												0.30	0.33	0.37	0.41	0.45	0.48	0.53	0.56	0.59	0.62	0.67	0.72	0.77	0.83	0.86	30	
6										0.30	0.33	0.37	0.40	0.44	0.48	0.51	0.56	0.59	0.62	0.66	0.72	0.76	0.82	0.84	0.94	1.00	31	
7									0.30	0.32	0.36	0.40	0.43	0.47	0.51	0.54	0.59	0.62	0.66	0.72	0.76	0.82	0.84	0.92	1.00	1.07	32	
8								0.29	0.32	0.36	0.39	0.43	0.46	0.50	0.54	0.58	0.62	0.66	0.72	0.76	0.82	0.84	0.92	0.99	1.08	1.17	33	
9							0.29	0.31	0.35	0.39	0.41	0.46	0.49	0.53	0.58	0.62	0.66	0.70	0.76	0.82	0.84	0.92	0.99	1.07	1.17	1.24	34	
10					0.26	0.27	0.31	0.34	0.38	0.40	0.44	0.49	0.52	0.56	0.61	0.65	0.70	0.76	0.82	0.84	0.92	0.98	1.06	1.15	1.28	1.40	35	
11					0.26	0.30	0.34	0.36	0.40	0.43	0.47	0.52	0.55	0.61	0.65	0.69	0.74	0.82	0.84	0.92	0.98	1.06	1.15	1.28	1.38	1.53	36	
12				0.26	0.29	0.33	0.35	0.39	0.42	0.46	0.50	0.55	0.59	0.63	0.69	0.74	0.80	0.84	0.92	0.98	1.06	1.15	1.28	1.38	1.50	1.60	37	
13			0.26	0.29	0.30	0.31	0.34	0.38	0.40	0.45	0.49	0.53	0.58	0.63	0.67	0.74	0.80	0.84	0.92	0.98	1.06	1.15	1.28	1.38	1.50	1.60	38	
14		0.26	0.29	0.30	0.33	0.36	0.39	0.43	0.46	0.52	0.57	0.62	0.67	0.73	0.80	0.84	0.92	0.98	1.06	1.15	1.28	1.38	1.48	1.58	1.70	1.80	39	
15	0.26	0.29	0.30	0.32	0.34	0.37	0.39	0.43	0.48	0.52	0.57	0.64	0.70	0.77	0.84	0.92	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.80	1.92	40	
16	0.29	0.30	0.32	0.33	0.35	0.38	0.42	0.46	0.51	0.56	0.62	0.69	0.76	0.83	0.92	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.79	1.91	2.07	41	
17	0.29	0.31	0.32	0.34	0.37	0.39	0.44	0.50	0.55	0.60	0.67	0.75	0.82	0.91	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.79	1.91	2.07	2.24	42	
18	0.29	0.31	0.32	0.34	0.37	0.39	0.44	0.50	0.55	0.60	0.67	0.75	0.82	0.91	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.79	1.91	2.07	2.24	43	
19	0.29	0.31	0.33	0.36	0.38	0.42	0.47	0.52	0.59	0.64	0.73	0.81	0.90	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.79	1.91	2.07	2.24	2.45	44	
20	0.28	0.30	0.33	0.36	0.40	0.46	0.51	0.56	0.63	0.70	0.79	0.89	0.98	1.06	1.15	1.28	1.37	1.47	1.57	1.69	1.79	1.91	2.07	2.24	2.45	2.69	45	
21	0.26	0.29	0.33	0.37	0.42	0.48	0.55	0.60	0.69	0.76	0.85	0.95	1.04	1.15	1.25	1.36	1.46	1.57	1.68	1.79	1.91	2.07	2.24	2.45	2.69	2.96	46	
22	0.25	0.28	0.34	0.39	0.45	0.51	0.58	0.66	0.75	0.84	0.93	1.03	1.12	1.23	1.33	1.44	1.55	1.67	1.78	1.91	2.07	2.24	2.45	2.69	2.96	3.30	47	
23	0.23	0.28	0.33	0.40	0.47	0.54	0.62	0.71	0.80	0.90	0.99	1.11	1.20	1.31	1.41	1.52	1.63	1.77	1.91	2.07	2.24	2.45	2.69	2.96	3.30	3.74	48	
24	0.22	0.29	0.35	0.42	0.49	0.58	0.66	0.75	0.86	0.96	1.07	1.16	1.28	1.37	1.48	1.62	1.73	1.88	2.06	2.24	2.45	2.69	2.96	3.30	3.74	4.23	49	
25	0.21	0.29	0.36	0.44	0.53	0.61	0.72	0.81	0.92	1.02	1.13	1.22	1.33	1.45	1.56	1.71	1.85	2.02	2.23	2.45	2.69	2.96	3.30	3.74	4.23	4.77	50	
26	0.21	0.29	0.38	0.46	0.55	0.65	0.76	0.85	0.96	1.08	1.19	1.28	1.41	1.53	1.66	1.82	2.01	2.20	2.45	2.69	2.96	3.30	3.74	4.23	4.77	5.36	51	
27	0.23	0.31	0.40	0.48	0.59	0.69	0.78	0.89	1.01	1.12	1.23	1.35	1.48	1.63	1.78	1.97	2.18	2.42	2.69	2.96	3.30	3.74	4.23	4.77	5.36	6.00	52	
28	0.25	0.33	0.42	0.52	0.61	0.71	0.82	0.93	1.05	1.16	1.29	1.43	1.58	1.73	1.92	2.15	2.38	2.67	2.96	3.30	3.74	4.23	4.77	5.36	6.00	6.69	53	
29	0.27	0.37	0.45	0.54	0.65	0.75	0.85	0.98	1.09	1.22	1.35	1.51	1.68	1.87	2.10	2.35	2.66	2.96	3.30	3.74	4.23	4.77	5.36	6.00	6.69	7.43	54	
30	0.30	0.39	0.47	0.58	0.67	0.78	0.89	1.00	1.13	1.28	1.43	1.61	1.81	2.04	2.31	2.60	2.96	3.30	3.74	4.23	4.77	5.36	6.00	6.69	7.43	8.22	55	
31	0.34	0.42	0.51	0.60	0.71	0.82	0.93	1.06	1.19	1.36	1.53	1.74	1.99	2.26	2.57	2.92	3.30	3.74	4.23	4.77	5.36	6.00	6.69	7.43	8.22	9.06	56	
32	0.36	0.44	0.53	0.64	0.73	0.86	0.99	1.12	1.29	1.48	1.69	1.93	2.20	2.51	2.88	3.27	3.74	4.23	4.77	5.36	6.00	6.69	7.43	8.22	9.06	9.95	57	
33	0.38	0.46	0.55	0.66	0.79	0.92	1.06	1.22	1.40	1.63	1.88	2.15	2.47	2.82	3.23	3.69	4.19	4.77	5.36	6.00	6.69	7.43	8.22	9.06	9.95	10.81	58	
34	0.38	0.47	0.58	0.70	0.83	0.98	1.14	1.35	1.56	1.81	2.09	2.42	2.79	3.18	3.63	4.15	4.72	5.36	6.00	6.69	7.43	8.22	9.06	9.95	10.81	11.77	59	
35	0.38	0.49	0.60	0.74	0.89	1.07	1.27	1.50	1.75	2.04	2.36	2.73	3.14	3.59	4.09	4.68	5.31	6.00	6.69	7.43	8.22	9.06	9.95	10.81	11.77	12.76	60	
36	0.39	0.51	0.64	0.80	0.97	1.17	1.41	1.67	1.95	2.28	2.64	3.04	3.51	3.99	4.56	5.18	5.87	6.69	7.43	8.22	9.06	9.95	10.81	11.77	12.76	13.78	61	
37	0.41	0.54	0.68	0.86	1.06	1.30	1.56	1.86	2.18	2.56	2.96	3.41	3.89	4.45	5.05	5.72	6.46	7.43	8.15	9.06	9.95	10.81	11.77	12.76	13.78	14.94	62	
38	0.44	0.58	0.74	0.94	1.18	1.44	1.74	2.07	2.45	2.84	3.29	3.78	4.33	4.92	5.57	6.31	7.09	7.96	8.89	9.89	10.81	11.77	12.76	13.78	14.94	16.09	63	
39	0.48	0.64	0.82	1.06	1.32	1.61	1.95	2.32	2.71	3.18	3.67	4.21	4.79	5.45	6.14	6.93	7.77	8.68	9.67	10.73	11.72	12.76	13.78	14.94	16.09	17.30	64	
40	0.54	0.72	0.94	1.20	1.48	1.81	2.18	2.59	3.04	3.53	4.06	4.65	5.30	6.01	6.76	7.59	8.50	9.47	10.50	11.62	12.66	13.78	14.91	16.09	17.30	18.62	65	
41	0.62	0.82	1.08	1.36	1.67	2.04	2.43	2.88	3.38	3.93	4.51	5.16	5.86	6.61	7.44	8.33	9.29	10.31	11.40	12.57	13.69	14.87	16.09	17.30	18.62	20.03	66	
42	0.70	0.96	1.24	1.56	1.91	2.30	2.75	3.23	3.77	4.36	4.99	5.70	6.45	7.27	8.16	9.11	10.12	11.20	12.36	13.56	14.79	16.05	17.30	18.61	20.03	21.61	67	
43	0.82	1.10	1.42	1.78	2.19	2.62	3.10	3.64	4.21	4.84	5.54	6.28	7.10	7.98	8.94	9.95	11.03	12.18	13.38	14.65	15.94	17.24	18.57	20.00	21.58	23.35	68	
44	0.95	1.27	1.64	2.06	2.49	2.97	3.49	4.07	4.70	5.38	6.12	6.92	7.80	8.75	9.77	10.85	11.99	13.20	14.48	15.80	17.14	18.48	19.93	21.53	23.27	25.24	69	
45	1.09	1.47	1.89	2.34	2.83	3.37	3.93	4.56	5.24	5.97	6.75	7.62	8.56	9.57	10.64	11.79	13.02	14.30	15.63	17.01	18.36	19.82	21.44	23.19	25.13	27.35	70	
46	1.23	1.67	2.14	2.63	3.18	3.76	4.39	5.05	5.79	6.57	7.42	8.34	9.33	10.40	11.56	12.77	14.06	15.44	16.89	18.23	19.70	21.31	23.07	25.02	27.21	29.77	71	
47	1.40	1.88	2.39	2.94	3.55	4.18	4.85	5.57	6.36	7.21	8.10	9.09	10.14	11.28	12.51	13.80	15.18	16.64	18.20	19.55	21.17	22.94	24.88	27.07	29.58	32.44	72	
48	1.58	2.11	2.67	3.28	3.90	4.59	5.31	6.10	6.94	7.84	8.82	9.85	10.99	12.20	13.51	14.90	16.35	17.92	19.43	20.99	22.77	24.71	26.91	29.43	32.19	35.32	73	
49	1.66	2.23	2.94	3.59	4.27	5.00	5.77	6.60	7.51	8.48	9.52	10.65	11.86	13.17	14.58	16.06</												

2001 Valuation Basic Table -- Female -- Smoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	1.75	2.50	3.21	3.88	4.60	5.37	6.20	7.10	8.06	9.12	10.23	11.46	12.76	14.17	15.70	17.29	19.00	20.82	22.51	24.18	26.42	28.91	31.64	34.64	37.92	41.62	75
51	1.87	2.84	3.53	4.20	4.96	5.76	6.65	7.60	8.64	9.76	10.97	12.29	13.71	15.24	16.89	18.63	20.48	22.46	23.94	26.15	28.61	31.32	34.26	37.51	41.05	45.06	76
52	1.98	3.20	3.86	4.54	5.30	6.14	7.06	8.08	9.21	10.43	11.73	13.15	14.70	16.37	18.17	20.07	22.12	23.69	25.88	28.34	31.02	33.91	37.10	40.60	44.41	48.75	77
53	2.13	3.47	4.20	4.87	5.65	6.53	7.50	8.58	9.78	11.11	12.53	14.09	15.78	17.60	19.58	21.67	23.44	25.62	28.04	30.71	33.62	36.71	40.15	43.91	48.03	52.71	78
54	2.27	3.76	4.56	5.23	6.02	6.93	7.98	9.13	10.41	11.83	13.40	15.12	16.97	19.00	21.17	23.19	25.37	27.76	30.43	33.33	36.44	39.73	43.45	47.49	51.95	57.00	79
55	2.40	4.08	4.96	5.63	6.46	7.40	8.50	9.72	11.11	12.67	14.38	16.27	18.32	20.54	22.96	25.10	27.49	30.13	33.04	36.19	39.50	42.98	46.98	51.36	56.14	61.60	80
56	2.63	4.30	5.29	5.98	6.82	7.81	8.97	10.28	11.79	13.47	15.34	17.41	19.67	22.16	24.85	27.22	29.87	32.77	35.92	39.28	42.82	46.59	50.90	55.60	60.73	68.21	81
57	2.72	4.53	5.64	6.35	7.25	8.30	9.54	10.96	12.58	14.40	16.43	18.71	21.22	23.96	26.95	29.58	32.48	35.67	39.08	42.68	46.56	50.74	55.13	60.18	65.64	75.39	82
58	2.75	4.78	5.99	6.76	7.73	8.87	10.20	11.76	13.51	15.51	17.71	20.19	22.95	25.99	29.31	32.19	35.40	38.85	42.54	46.50	50.54	54.99	59.70	65.08	70.94	82.33	83
59	2.91	4.97	6.36	7.20	8.22	9.49	10.94	12.64	14.56	16.76	19.20	21.92	24.95	28.27	31.93	35.13	38.62	42.41	46.44	50.37	54.81	59.55	64.64	70.37	76.65	89.79	84
60	3.00	5.15	6.70	7.60	8.74	10.13	11.75	13.62	15.75	18.18	20.87	23.86	27.20	30.85	34.88	38.43	42.27	46.38	50.18	54.63	59.35	64.43	69.76	75.77	82.28	97.26	85
61	3.07	5.34	7.01	7.99	9.25	10.78	12.57	14.65	17.05	19.75	22.74	26.07	29.73	33.79	38.21	42.12	46.32	50.01	54.45	59.15	64.21	69.52	75.61	81.48	89.55	103.32	86
62	3.24	5.51	7.31	8.35	9.71	11.41	13.41	15.74	18.42	21.44	24.79	28.49	32.60	37.09	41.98	46.27	49.85	54.27	58.95	64.00	69.28	75.45	81.25	88.99	95.39	113.27	87
63	3.55	5.69	7.56	8.67	10.14	12.01	14.24	16.86	19.87	23.29	27.05	31.21	35.79	40.78	46.19	49.68	54.09	58.80	63.82	69.05	75.30	80.97	88.49	94.77	101.91	123.15	88
64	3.89	7.13	7.83	8.98	10.57	12.62	15.11	18.05	21.44	25.27	29.50	34.18	39.29	44.86	49.51	53.91	58.60	63.61	68.81	75.14	80.68	87.93	94.23	101.24	108.73	133.05	89
65	4.32	7.42	8.09	9.29	11.02	13.27	16.03	19.32	23.12	27.47	32.20	37.44	43.14	49.34	53.73	58.40	63.39	68.57	74.99	80.46	87.37	93.61	100.56	108.57	116.37	140.84	90
66	4.44	7.77	8.40	9.64	11.49	13.93	16.96	20.57	24.76	29.50	34.74	40.49	46.75	53.54	58.20	63.22	68.34	74.83	80.17	86.81	93.07	99.82	108.07	115.83	124.06	141.74	91
67	4.48	8.14	8.74	10.06	12.06	14.73	18.05	22.00	26.57	31.75	37.50	43.79	50.65	58.03	63.00	68.10	74.68	79.89	86.31	92.45	99.14	107.33	115.20	123.37	132.07	148.21	92
68	4.97	8.53	9.18	10.61	12.78	15.70	19.33	23.65	28.64	34.26	40.52	47.39	54.85	62.81	67.91	73.90	79.60	85.75	91.90	98.47	106.60	114.39	122.58	131.32	140.94	159.17	93
69	5.49	8.96	9.70	11.28	13.69	16.88	20.84	25.53	30.93	37.02	43.83	51.23	59.31	67.67	72.96	78.69	84.81	91.29	97.79	105.69	113.49	121.70	130.45	140.35	150.04	173.34	94
70	6.04	9.43	10.31	12.09	14.77	18.29	22.62	27.72	33.57	40.10	47.41	55.43	64.02	71.97	77.61	83.69	90.20	97.12	104.54	112.41	121.01	130.13	139.76	149.52	159.59	195.42	95
71	6.73	9.96	11.04	13.08	16.09	19.96	24.69	30.20	36.46	43.43	51.28	59.85	69.06	76.47	82.44	88.90	95.85	103.15	111.06	119.43	128.94	139.17	149.00	159.16	172.24	215.44	96
72	9.91	10.53	11.89	14.26	17.62	21.89	27.03	33.00	39.68	47.06	55.46	64.53	74.25	81.13	84.80	94.35	101.67	109.53	117.85	126.67	137.16	148.48	158.88	171.15	185.85	235.59	97
73	10.48	11.21	12.89	15.65	19.41	24.11	29.68	36.04	43.16	50.93	59.85	69.45	79.63	84.52	87.24	99.95	107.74	115.98	124.84	134.20	145.89	158.45	170.06	183.80	202.91	234.92	98
74	11.10	12.04	14.12	17.29	21.48	26.63	32.62	39.42	46.93	55.04	64.43	74.54	84.25	86.41	97.90	105.76	113.91	122.68	132.07	142.00	154.90	168.97	181.75	200.85	218.88	243.25	99
75	11.76	13.10	15.61	19.22	23.85	29.42	35.83	43.03	50.87	59.32	69.19	79.74	85.59	95.85	99.28	112.83	121.92	131.48	141.61	154.33	164.30	179.88	196.92	215.60	236.03	258.65	100
76	12.80	14.61	17.64	21.81	27.00	33.19	40.24	48.05	56.56	65.71	76.26	84.77	93.96	98.92	111.74	121.06	130.88	141.22	153.91	163.98	179.02	195.80	214.16	234.24	256.19	279.94	101
77	14.25	16.56	20.12	24.87	30.69	37.47	45.15	53.62	62.83	72.62	83.99	92.00	98.56	110.66	120.30	130.29	140.83	153.48	163.83	178.51	195.05	213.14	233.11	254.71	278.05	303.22	102
78	16.20	19.05	23.15	28.45	34.89	42.32	50.61	59.77	69.62	80.18	90.15	98.27	109.58	119.44	129.70	140.44	152.91	163.67	178.17	194.30	212.52	232.22	253.48	276.70	301.75	328.08	103
79	16.77	22.14	26.82	32.68	39.70	47.74	56.68	66.52	77.08	88.29	97.93	108.49	118.68	129.11	140.05	152.48	163.36	177.83	193.74	211.50	231.54	252.74	275.89	300.56	327.11	354.91	104
80	17.65	25.98	31.15	37.57	45.14	53.85	63.39	73.84	85.07	96.99	107.43	117.93	128.64	139.54	152.06	163.21	177.32	192.99	210.47	229.97	252.25	275.08	299.97	326.78	354.91	388.35	105
81	19.71	30.61	36.27	43.20	51.33	60.57	70.74	81.85	93.76	106.39	117.14	128.04	139.15	151.49	162.89	176.97	192.25	209.45	228.40	250.04	274.81	299.68	326.46	354.91	388.35	422.59	106
82	22.17	36.08	42.17	49.59	58.25	68.01	78.76	90.49	102.98	116.31	127.41	138.76	151.06	162.74	176.46	191.69	208.22	226.83	247.82	271.85	299.09	326.14	354.91	388.35	422.59	457.63	107
83	24.58	41.11	48.94	56.78	65.87	76.21	87.43	99.70	112.91	126.92	138.33	150.64	162.58	176.12	190.94	207.19	225.48	246.59	270.23	296.72	325.81	354.91	388.35	422.59	457.63	492.87	108
84	28.58	48.28	56.58	64.75	74.31	85.07	96.79	109.62	123.33	137.99	150.06	162.27	175.78	190.38	206.17	225.03	246.59	270.23	296.13	324.52	354.91	388.35	422.59	457.63	492.87	529.51	109
85	34.59	56.37	63.65	73.57	83.45	94.62	106.81	120.04	134.45	149.60	162.06	175.30	189.63	205.35	225.03	246.59	270.23	296.13	324.52	354.91	388.35	422.59	457.63	492.87	529.51	566.95	110
86	45.77	62.50	72.82	83.15	93.33	106.43	117.47	131.18	146.00	161.90	174.86	188.94	205.35	225.03	246.59	270.23	296.13	324.52	354.91	388.35	422.59	457.63	492.87	529.51	566.95	603.00	111
87	50.17	72.07	82.82	93.21	106.14	117.14	128.63	142.77	158.09	174.56	188.37	203.17	221.49	245.56	270.23	296.13	324.52	354.91	388.35	422.16	457.17	492.87	529.51	566.95	603.00	638.00	112
88	63.59	82.56	93.06	105.80	116.83	128.40	140.38	154.89	170.68	187.70	202.23	217.94	238.30	263.53	290.40	318.94	348.43	380.22	413.65	448.74	485.48	523.87	563.92	603.00	638.00	670.00	113
89	79.03	92.98	105.46	116.54	128.21	140.21	152.79	167.66	183.75	201.29	216.58	233.49	255.83	282.50	310.35	339.55	371.11	404.40	439.43	476.21	514.72	554.96	596.95	638.00	670.00	714.50	114
90	92.83	105.03	116.25	127.89	140.03	152.60	165.59	180.78	197.26	215.12	231.40	249.35	280.10	301.65	330.39	361.57	394.57	429.40	466.07	504.56	544.89	587.04	631.03	670.00	714.50	756.00	115
91	104.69	115.97	127.68	139.79	152.34	165.32	180.31	194.17	211.00	229.54	246.67	272.37	296.00	321.18	351.80	384.34	418.82	455.22	493.55	533.81	575.99	620.10	666.14	714.10	756.00	799.00	116
92	115.68	127.46	139.67	152.21</																							

Proposed 2001 CSO Table -- Male -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
0	0.97	0.56	0.39	0.27	0.21	0.21	0.22	0.22	0.22	0.23	0.23	0.27	0.33	0.39	0.47	0.61	0.74	0.87	0.94	0.98	1.00	1.00	1.02	1.03	1.05	1.07	25
1	0.47	0.36	0.26	0.21	0.21	0.21	0.22	0.22	0.22	0.23	0.25	0.29	0.36	0.41	0.58	0.71	0.83	0.92	0.96	0.99	1.00	1.02	1.03	1.05	1.07	1.12	26
2	0.35	0.26	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.23	0.26	0.33	0.37	0.48	0.68	0.80	0.89	0.95	0.99	1.00	1.02	1.03	1.05	1.07	1.11	1.17	27
3	0.24	0.20	0.20	0.21	0.21	0.21	0.22	0.22	0.22	0.25	0.32	0.36	0.47	0.66	0.78	0.87	0.94	0.99	1.00	1.02	1.03	1.05	1.07	1.10	1.14	1.17	28
4	0.20	0.20	0.20	0.21	0.21	0.21	0.22	0.22	0.25	0.31	0.36	0.47	0.66	0.78	0.87	0.94	0.98	1.00	1.02	1.03	1.05	1.07	1.10	1.13	1.14	1.15	29
5	0.20	0.20	0.20	0.21	0.21	0.21	0.22	0.24	0.30	0.35	0.47	0.65	0.78	0.87	0.94	0.98	1.00	1.02	1.03	1.05	1.07	1.10	1.11	1.12	1.13	1.14	30
6	0.20	0.20	0.20	0.21	0.21	0.21	0.24	0.30	0.34	0.46	0.65	0.78	0.87	0.94	0.98	1.00	1.01	1.02	1.05	1.07	1.08	1.09	1.10	1.11	1.12	1.13	31
7	0.20	0.20	0.20	0.21	0.21	0.24	0.29	0.34	0.45	0.65	0.78	0.87	0.94	0.98	0.99	1.01	1.01	1.04	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	32
8	0.20	0.20	0.20	0.21	0.23	0.28	0.33	0.45	0.64	0.78	0.87	0.93	0.97	0.98	1.00	1.00	1.03	1.05	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.15	33
9	0.20	0.20	0.20	0.23	0.27	0.33	0.44	0.64	0.78	0.87	0.93	0.97	0.98	0.99	0.99	1.01	1.04	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	34
10	0.20	0.20	0.22	0.27	0.33	0.43	0.64	0.77	0.87	0.93	0.97	0.97	0.98	0.98	1.01	1.03	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	35
11	0.20	0.22	0.26	0.32	0.42	0.64	0.77	0.87	0.92	0.96	0.96	0.97	0.97	1.00	1.02	1.06	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	36
12	0.21	0.25	0.32	0.41	0.64	0.77	0.87	0.92	0.95	0.95	0.96	0.96	0.99	1.02	1.06	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	1.34	37
13	0.24	0.31	0.40	0.64	0.77	0.87	0.91	0.94	0.94	0.95	0.95	0.95	0.98	1.00	1.05	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	1.34	38
14	0.30	0.39	0.64	0.77	0.87	0.91	0.93	0.93	0.94	0.94	0.96	0.99	1.04	1.08	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	1.34	1.44	1.54	39
15	0.38	0.64	0.77	0.87	0.90	0.91	0.92	0.93	0.93	0.95	0.98	1.02	1.07	1.09	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	1.34	1.44	1.54	1.65	40
16	0.64	0.77	0.87	0.90	0.91	0.91	0.92	0.92	0.94	0.96	1.00	1.04	1.07	1.10	1.11	1.12	1.13	1.15	1.18	1.21	1.28	1.34	1.44	1.54	1.65	1.79	41
17	0.77	0.87	0.90	0.91	0.91	0.92	0.92	0.93	0.95	0.98	1.01	1.04	1.06	1.08	1.09	1.10	1.15	1.18	1.21	1.28	1.34	1.44	1.54	1.65	1.79	1.96	42
18	0.87	0.88	0.89	0.89	0.90	0.90	0.92	0.93	0.96	0.98	1.00	1.02	1.04	1.07	1.10	1.11	1.18	1.21	1.28	1.34	1.44	1.54	1.65	1.79	1.96	2.15	43
19	0.85	0.86	0.86	0.87	0.87	0.89	0.90	0.93	0.95	0.96	0.98	0.99	1.02	1.06	1.11	1.15	1.21	1.28	1.34	1.44	1.54	1.65	1.79	1.96	2.15	2.39	44
20	0.82	0.82	0.83	0.83	0.84	0.86	0.88	0.90	0.92	0.93	0.94	0.97	1.01	1.07	1.15	1.21	1.28	1.34	1.44	1.54	1.65	1.79	1.96	2.15	2.39	2.65	45
21	0.76	0.77	0.77	0.78	0.80	0.82	0.85	0.86	0.88	0.89	0.93	0.97	1.02	1.09	1.18	1.28	1.34	1.44	1.54	1.65	1.79	1.96	2.15	2.39	2.65	2.90	46
22	0.71	0.71	0.72	0.74	0.77	0.79	0.81	0.83	0.84	0.89	0.93	0.97	1.03	1.12	1.24	1.34	1.44	1.54	1.65	1.79	1.96	2.15	2.39	2.65	2.90	3.17	47
23	0.65	0.66	0.68	0.72	0.75	0.78	0.80	0.81	0.85	0.89	0.94	0.99	1.07	1.17	1.30	1.43	1.54	1.65	1.79	1.96	2.15	2.39	2.65	2.90	3.17	3.33	48
24	0.59	0.61	0.66	0.71	0.75	0.78	0.79	0.83	0.87	0.92	0.97	1.03	1.12	1.23	1.39	1.52	1.65	1.79	1.96	2.15	2.39	2.65	2.90	3.14	3.33	3.52	49
25	0.51	0.57	0.65	0.72	0.76	0.78	0.81	0.85	0.90	0.96	1.02	1.10	1.19	1.32	1.47	1.64	1.79	1.96	2.15	2.39	2.65	2.90	3.12	3.31	3.52	3.76	50
26	0.48	0.57	0.66	0.74	0.77	0.80	0.84	0.89	0.94	1.01	1.09	1.17	1.28	1.43	1.59	1.78	1.96	2.15	2.39	2.65	2.90	3.11	3.30	3.52	3.76	4.06	51
27	0.47	0.58	0.68	0.75	0.80	0.84	0.89	0.94	1.00	1.09	1.17	1.27	1.39	1.56	1.72	1.94	2.15	2.39	2.65	2.90	3.10	3.29	3.52	3.76	4.06	4.47	52
28	0.48	0.60	0.69	0.77	0.84	0.88	0.93	0.99	1.07	1.16	1.27	1.39	1.53	1.71	1.89	2.13	2.36	2.62	2.90	3.10	3.29	3.51	3.76	4.06	4.47	4.93	53
29	0.48	0.60	0.71	0.80	0.88	0.93	0.99	1.07	1.14	1.27	1.39	1.53	1.67	1.85	2.07	2.35	2.62	2.88	3.09	3.29	3.51	3.76	4.05	4.47	4.93	5.50	54
30	0.48	0.61	0.72	0.82	0.91	0.99	1.07	1.14	1.25	1.38	1.50	1.64	1.80	2.00	2.26	2.55	2.82	3.06	3.28	3.51	3.76	4.05	4.47	4.92	5.46	6.17	55
31	0.47	0.62	0.73	0.84	0.94	1.05	1.14	1.23	1.33	1.45	1.58	1.75	1.96	2.21	2.50	2.78	3.03	3.26	3.50	3.74	4.03	4.41	4.90	5.44	6.03	6.88	56
32	0.48	0.61	0.74	0.85	0.97	1.07	1.19	1.29	1.39	1.50	1.66	1.88	2.16	2.46	2.75	3.01	3.25	3.49	3.74	4.03	4.41	4.90	5.42	5.99	6.67	7.64	57
33	0.51	0.64	0.77	0.90	1.02	1.14	1.26	1.36	1.46	1.58	1.77	2.04	2.37	2.67	2.96	3.22	3.47	3.74	4.03	4.41	4.90	5.40	5.96	6.61	7.31	8.27	58
34	0.54	0.67	0.82	0.94	1.08	1.21	1.34	1.45	1.56	1.71	1.94	2.24	2.56	2.90	3.18	3.44	3.73	4.03	4.41	4.88	5.38	5.93	6.57	7.25	7.94	8.99	59
35	0.57	0.71	0.85	0.99	1.13	1.28	1.41	1.55	1.70	1.90	2.15	2.44	2.78	3.11	3.41	3.71	4.03	4.41	4.84	5.32	5.85	6.48	7.14	7.83	8.58	9.36	60
36	0.61	0.74	0.89	1.04	1.19	1.33	1.49	1.68	1.89	2.12	2.37	2.67	3.00	3.35	3.69	4.03	4.41	4.84	5.32	5.85	6.48	7.14	7.83	8.58	9.36	10.94	61
37	0.64	0.77	0.93	1.08	1.23	1.40	1.60	1.85	2.09	2.33	2.58	2.87	3.22	3.62	4.01	4.40	4.81	5.29	5.82	6.43	7.09	7.78	8.53	9.36	10.36	12.25	62
38	0.69	0.85	1.01	1.15	1.30	1.50	1.76	2.04	2.31	2.55	2.80	3.09	3.46	3.89	4.34	4.78	5.27	5.79	6.40	7.05	7.73	8.50	9.36	10.36	11.65	13.71	63
39	0.75	0.93	1.09	1.23	1.40	1.64	1.94	2.23	2.51	2.76	3.01	3.34	3.75	4.21	4.69	5.22	5.75	6.37	7.01	7.70	8.46	9.36	10.36	11.65	13.09	15.24	64
40	0.79	1.00	1.17	1.33	1.54	1.82	2.13	2.44	2.71	2.97	3.28	3.66	4.10	4.58	5.10	5.68	6.32	6.98	7.68	8.44	9.34	10.36	11.62	13.00	14.49	16.85	65
41	0.84	1.07	1.28	1.48	1.71	2.02	2.35	2.65	2.93	3.24	3.61	4.04	4.51	5.03	5.64	6.28	6.93	7.64	8.43	9.32	10.36	11.60	12.95	14.49	15.84	18.47	66
42	0.90	1.17	1.41	1.64	1.90	2.21	2.55	2.86	3.19	3.56	3.98	4.45	4.98	5.59	6.28	6.89	7.58	8.39	9.31	10.36	11.58	12.91	14.41	15.84	17.02	20.09	67
43	0.95	1.23	1.51	1.76	2.03	2.34	2.71	3.07	3.45	3.87	4.34	4.89	5.54	6.22	6.89	7.48	8.31	9.26	10.33	11.55	12.87	14.27	15.70	17.02	18.57	21.85	68
44	1.01	1.32	1.60	1.86	2.14	2.49	2.89	3.32	3.74	4.21	4.72	5.43	6.16	6.83	7.46	8.21	9.17	10.27	11.51	12.83	14.20	15.61	17.02	18.44	20.19	23.64	69
45	1.11	1.41	1.69	1.96	2.29	2.67	3.13	3.60	4.10	4.59	5.21	6.04	6.76	7.39	8.08	9.05	10.18	11.43	12.76	14.14	15.53	16.92	18.31	20.19	22.29	25.77	70
46	1.20	1.49	1.77	2.07	2.44	2.90	3.40	3.95	4.49	5.06	5.80	6.63	7.32	7.94	8.91	10.06	11.32	12.68	14.06	15.45	16.82	18.19	20.01	22.29	24.86	28.15	71
47	1.30	1.57	1.85	2.20	2.64	3.14	3.71	4.32	4.91	5.63	6.37</																

Proposed 2001 CSO Table -- Male -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
50	1.61	2.00	2.41	2.85	3.33	3.90	4.63	5.43	6.17	7.01	8.01	9.25	10.60	12.07	13.60	15.23	16.55	17.78	19.08	21.48	24.19	27.34	30.74	34.31	37.73	41.91	75	
51	1.75	2.21	2.67	3.14	3.62	4.22	4.94	5.75	6.59	7.55	8.81	10.39	11.95	13.47	14.85	16.49	17.69	18.90	21.07	23.96	27.08	30.46	33.98	37.72	41.46	46.08	76	
52	1.91	2.43	2.95	3.45	3.95	4.53	5.27	6.14	7.12	8.32	9.86	11.69	13.33	14.42	16.02	17.60	18.89	20.86	23.50	26.82	30.17	33.67	37.38	41.46	45.65	50.92	77	
53	2.00	2.62	3.20	3.76	4.30	4.92	5.73	6.75	7.87	9.35	11.12	13.06	14.27	15.62	17.22	18.89	20.85	23.27	26.31	29.88	33.35	37.03	41.08	45.65	50.45	56.56	78	
54	2.09	2.81	3.49	4.08	4.64	5.35	6.32	7.53	8.82	10.52	12.40	13.97	15.47	17.06	18.88	20.85	23.26	26.05	29.31	33.03	36.68	40.69	45.23	50.45	56.04	63.06	79	
55	2.19	3.02	3.77	4.38	5.01	5.86	7.03	8.43	9.87	11.66	13.19	15.06	16.88	18.70	20.84	23.26	26.05	29.02	32.39	36.33	40.31	44.80	49.98	56.04	62.48	70.14	80	
56	2.30	3.22	4.02	4.72	5.46	6.49	7.86	9.41	10.93	12.41	14.22	16.35	18.52	20.64	23.25	26.04	29.01	32.08	35.63	39.92	44.38	49.51	55.52	62.47	69.50	78.19	81	
57	2.41	3.41	4.29	5.11	6.02	7.24	8.77	10.41	11.97	13.74	15.83	18.14	20.43	23.03	26.03	29.00	32.07	35.27	39.15	43.95	49.03	54.99	61.90	69.49	77.46	86.54	82	
58	2.59	3.62	4.60	5.58	6.69	8.09	9.69	11.34	12.89	14.89	17.24	20.03	22.79	25.77	29.00	32.06	35.26	38.75	43.10	48.56	54.46	61.31	68.85	77.46	85.74	95.51	83	
59	2.80	3.87	4.97	6.12	7.44	8.97	10.63	12.24	13.76	16.00	18.68	21.96	25.51	28.71	32.05	35.25	38.74	42.66	47.62	53.94	60.72	68.18	76.74	85.74	94.62	105.43	84	
60	3.07	4.18	5.38	6.71	8.22	9.86	11.54	13.15	14.65	17.18	20.29	23.98	28.14	31.72	35.24	38.73	42.65	47.14	52.89	60.13	67.53	76.01	84.92	94.61	104.45	116.57	85	
61	3.38	4.53	5.83	7.31	8.98	10.74	12.45	14.02	15.55	18.46	21.94	25.86	30.16	34.89	38.71	42.63	47.12	52.35	58.95	66.87	75.27	84.12	93.73	104.44	115.49	128.91	86	
62	3.73	4.92	6.32	7.95	9.78	11.66	13.42	15.04	16.66	19.92	23.60	27.67	32.18	37.27	42.62	47.11	52.33	58.35	65.55	74.53	83.30	92.83	103.45	115.48	127.71	142.35	87	
63	3.98	5.37	6.97	8.77	10.71	12.70	14.58	16.34	18.16	21.65	25.51	29.79	34.66	40.28	46.83	52.31	58.33	64.89	73.06	82.48	91.92	102.47	114.39	127.70	141.03	156.73	88	
64	4.19	5.85	7.68	9.65	11.75	13.87	15.92	17.92	19.97	23.65	27.76	32.42	37.81	44.12	51.61	58.31	64.86	72.31	80.85	91.02	101.47	113.29	126.48	141.01	155.27	171.88	89	
65	4.36	6.33	8.42	10.63	12.91	15.19	17.42	19.65	21.96	25.89	30.38	35.57	41.64	48.86	57.37	64.83	72.28	80.02	89.22	100.46	112.18	125.27	139.67	155.25	170.28	187.66	90	
66	4.50	7.01	9.31	11.68	14.25	16.67	19.01	21.41	24.02	28.31	33.30	39.13	46.08	54.27	63.60	72.25	79.98	88.30	98.47	111.06	124.03	138.32	153.77	170.25	185.91	202.44	91	
67	4.79	7.78	10.29	12.84	15.76	18.29	20.77	23.33	26.22	30.98	36.58	43.25	51.12	60.10	70.61	79.95	88.25	97.45	108.86	122.79	136.96	152.28	168.63	185.88	200.54	217.83	92	
68	5.39	8.64	11.39	14.12	17.13	20.15	23.11	26.07	29.08	34.48	40.91	48.51	57.20	67.39	78.59	88.21	97.40	107.72	120.35	135.58	150.77	166.98	184.11	200.51	215.80	234.04	93	
69	5.96	9.58	12.60	15.52	17.95	22.27	25.26	28.15	31.54	37.64	44.88	53.17	62.90	73.63	85.70	97.35	107.66	119.09	132.88	149.26	165.35	182.32	198.62	215.80	234.04	251.14	94	
70	6.60	10.66	13.95	17.09	18.77	24.50	27.30	30.37	36.46	43.55	51.70	61.26	71.83	83.71	97.29	107.61	119.02	131.49	146.28	163.68	180.52	196.69	213.75	234.04	251.14	269.17	95	
71	8.04	11.85	15.44	17.99	21.55	26.45	29.22	36.06	40.39	48.18	57.34	67.50	78.96	92.07	107.22	118.97	131.41	144.74	160.42	178.72	194.77	211.72	234.04	251.14	269.17	285.64	96	
72	9.83	13.15	17.08	20.64	24.25	28.03	32.10	36.57	41.70	50.12	59.51	70.17	82.41	96.58	112.84	131.25	144.67	158.73	175.16	192.84	209.68	234.04	251.14	269.17	285.64	303.18	97	
73	11.24	15.66	19.58	23.09	26.37	29.73	33.47	39.92	43.92	52.66	62.61	74.08	87.40	102.73	120.16	139.67	158.66	173.33	189.02	207.64	234.04	251.14	269.17	285.64	303.18	321.88	98	
74	12.99	17.18	21.37	25.32	28.88	32.23	38.25	42.60	47.23	56.82	67.69	80.35	94.96	111.61	130.31	151.04	173.26	187.08	203.57	234.04	251.14	269.17	285.64	303.18	321.88	341.85	99	
75	15.03	18.34	23.11	28.13	31.48	36.79	41.48	46.42	56.82	67.69	80.35	94.95	111.60	130.30	151.03	173.24	187.05	201.53	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	100	
76	15.56	20.29	25.42	30.74	35.37	40.36	45.59	55.19	66.73	79.29	93.78	110.31	128.89	149.49	172.07	187.05	201.53	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	101	
77	16.13	21.89	27.82	33.98	39.25	44.72	53.53	65.34	73.39	90.37	106.55	124.76	145.01	167.22	185.15	201.53	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	102	
78	17.16	23.53	30.44	38.22	43.94	52.02	64.09	72.83	90.37	106.55	124.76	145.01	167.22	185.15	201.53	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	103	
79	18.41	25.48	33.73	43.05	50.42	62.69	72.03	89.02	96.83	114.09	133.36	154.61	176.53	199.49	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	104	
80	19.78	28.17	37.88	48.95	61.43	71.38	87.89	96.05	110.23	129.14	150.03	171.63	195.22	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	105	
81	21.44	31.55	43.12	56.19	70.77	86.80	95.30	109.46	124.39	144.88	166.15	194.12	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	106	
82	23.60	35.89	49.65	64.89	81.61	94.58	108.71	123.69	131.93	166.01	194.12	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	107	
83	26.82	41.51	57.61	75.09	93.94	108.07	123.13	131.48	165.88	194.12	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	108	
84	31.47	48.54	66.89	86.53	107.43	122.58	131.02	165.58	194.12	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	109	
85	37.70	56.98	77.47	99.17	122.02	130.57	165.27	194.12	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	110	
86	45.42	66.99	89.60	113.26	130.12	164.96	193.92	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	620.79	653.84	111
87	54.62	78.95	103.95	129.66	164.66	193.72	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	620.79	653.84	688.94	112
88	65.70	93.50	121.34	164.36	193.52	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	620.79	653.84	688.94	726.18	113
89	79.86	111.58	158.79	193.31	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	620.79	653.84	688.94	726.18	765.70	114
90	98.80	152.25	189.60	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64	620.79	653.84	688.94	726.18	765.70	807.61	115
91	143.72	185.25	234.04	251.14	269.17	285.64	303.18	321.88	341.85	363.19	380.08	398.06	417.20	437.56	459.21	482.22	506.69	532.69	560.31	589.64</								

Proposed 2001 CSO Table -- Male -- Nonsmoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
0																	0.74	0.85	0.92	0.94	0.95	0.95	0.95	0.96	0.97	0.98	25
1																0.71	0.81	0.90	0.93	0.95	0.95	0.95	0.96	0.97	0.98	1.02	26
2														0.68	0.78	0.87	0.92	0.94	0.95	0.95	0.95	0.96	0.97	0.98	1.01	1.07	27
3													0.66	0.76	0.85	0.91	0.94	0.95	0.95	0.95	0.96	0.97	0.98	1.00	1.04	1.05	28
4												0.66	0.76	0.85	0.91	0.94	0.95	0.95	0.96	0.96	0.97	0.98	1.00	1.02	1.02	1.03	29
5											0.65	0.76	0.85	0.91	0.94	0.94	0.95	0.95	0.96	0.97	0.98	0.99	1.00	1.00	1.01	1.02	30
6										0.65	0.76	0.85	0.91	0.94	0.94	0.94	0.95	0.95	0.96	0.96	0.97	0.98	0.98	0.99	1.00	1.01	31
7									0.65	0.76	0.85	0.91	0.93	0.93	0.93	0.94	0.95	0.95	0.95	0.96	0.97	0.97	0.98	0.99	1.00	1.01	32
8								0.64	0.76	0.85	0.90	0.92	0.92	0.92	0.93	0.95	0.95	0.96	0.97	0.97	0.97	0.98	0.99	1.00	1.01	1.04	33
9							0.64	0.76	0.85	0.90	0.91	0.91	0.91	0.92	0.93	0.95	0.96	0.97	0.97	0.98	0.99	1.00	1.01	1.01	1.04	1.06	34
10						0.64	0.75	0.85	0.89	0.90	0.90	0.90	0.91	0.93	0.94	0.96	0.97	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.09	35
11						0.64	0.75	0.85	0.88	0.89	0.89	0.89	0.90	0.92	0.93	0.96	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.09	1.15	36
12					0.64	0.75	0.85	0.87	0.88	0.88	0.88	0.89	0.91	0.93	0.96	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.09	1.15	1.20	37
13				0.64	0.75	0.85	0.86	0.87	0.87	0.87	0.88	0.89	0.91	0.92	0.96	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.09	1.15	1.20	38
14			0.64	0.75	0.85	0.86	0.87	0.87	0.87	0.88	0.89	0.91	0.95	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.09	1.15	1.20	1.29	1.37	39
15		0.64	0.75	0.85	0.85	0.86	0.86	0.86	0.87	0.88	0.90	0.93	0.97	0.97	0.98	0.99	1.00	1.01	1.04	1.06	1.06	1.09	1.15	1.20	1.29	1.37	40
16	0.64	0.75	0.84	0.84	0.85	0.85	0.85	0.86	0.87	0.88	0.91	0.95	0.96	0.98	0.99	1.00	1.01	1.04	1.06	1.09	1.15	1.20	1.29	1.37	1.46	1.58	41
17	0.75	0.83	0.83	0.84	0.84	0.84	0.85	0.86	0.87	0.90	0.92	0.94	0.95	0.96	0.97	0.98	1.04	1.06	1.09	1.15	1.20	1.29	1.37	1.46	1.58	1.73	42
18	0.82	0.82	0.83	0.83	0.83	0.84	0.85	0.85	0.88	0.89	0.90	0.92	0.93	0.96	0.98	1.00	1.06	1.08	1.15	1.20	1.29	1.37	1.46	1.58	1.73	1.90	43
19	0.79	0.80	0.80	0.80	0.81	0.82	0.82	0.85	0.86	0.86	0.88	0.89	0.91	0.95	1.00	1.03	1.08	1.15	1.20	1.29	1.36	1.46	1.58	1.73	1.90	2.10	44
20	0.76	0.76	0.76	0.77	0.78	0.79	0.80	0.82	0.82	0.83	0.85	0.87	0.90	0.96	1.03	1.08	1.14	1.20	1.29	1.36	1.46	1.58	1.73	1.90	2.10	2.33	45
21	0.70	0.70	0.71	0.72	0.73	0.75	0.77	0.77	0.79	0.81	0.83	0.87	0.92	0.98	1.06	1.14	1.20	1.29	1.36	1.46	1.58	1.73	1.90	2.10	2.33	2.55	46
22	0.65	0.66	0.67	0.68	0.71	0.72	0.73	0.75	0.76	0.80	0.83	0.88	0.93	1.01	1.11	1.20	1.29	1.36	1.46	1.58	1.73	1.90	2.10	2.33	2.55	2.79	47
23	0.60	0.61	0.63	0.66	0.69	0.70	0.72	0.74	0.76	0.80	0.84	0.89	0.96	1.05	1.16	1.28	1.36	1.46	1.58	1.73	1.90	2.10	2.33	2.55	2.79	2.93	48
24	0.55	0.56	0.61	0.65	0.68	0.70	0.72	0.75	0.78	0.82	0.88	0.93	1.01	1.10	1.24	1.35	1.46	1.58	1.73	1.90	2.10	2.33	2.55	2.77	2.93	3.09	49
25	0.47	0.53	0.60	0.65	0.68	0.71	0.74	0.76	0.81	0.87	0.92	0.99	1.07	1.18	1.31	1.45	1.58	1.73	1.90	2.10	2.33	2.55	2.75	2.93	3.09	3.32	50
26	0.45	0.53	0.60	0.67	0.70	0.73	0.75	0.80	0.85	0.91	0.97	1.05	1.15	1.27	1.41	1.58	1.73	1.90	2.10	2.33	2.55	2.74	2.91	3.09	3.32	3.59	51
27	0.44	0.53	0.61	0.69	0.73	0.75	0.80	0.85	0.90	0.97	1.05	1.14	1.24	1.39	1.53	1.72	1.90	2.10	2.32	2.55	2.74	2.91	3.09	3.32	3.59	3.96	52
28	0.44	0.54	0.63	0.70	0.75	0.79	0.84	0.90	0.96	1.04	1.14	1.24	1.36	1.52	1.68	1.90	2.09	2.31	2.55	2.73	2.91	3.09	3.32	3.59	3.96	4.36	53
29	0.44	0.55	0.65	0.72	0.79	0.84	0.90	0.96	1.03	1.14	1.24	1.36	1.49	1.64	1.85	2.08	2.30	2.54	2.73	2.90	3.09	3.32	3.59	3.96	4.36	4.87	54
30	0.44	0.56	0.65	0.74	0.83	0.90	0.96	1.03	1.13	1.23	1.34	1.46	1.60	1.79	2.00	2.26	2.49	2.70	2.90	3.09	3.32	3.59	3.94	4.36	4.84	5.50	55
31	0.44	0.56	0.66	0.76	0.85	0.94	1.03	1.11	1.19	1.29	1.41	1.56	1.75	1.96	2.22	2.46	2.68	2.88	3.08	3.31	3.57	3.92	4.35	4.84	5.39	6.14	56
32	0.44	0.55	0.68	0.77	0.87	0.97	1.07	1.15	1.24	1.34	1.48	1.68	1.92	2.18	2.44	2.66	2.88	3.08	3.31	3.57	3.91	4.35	4.82	5.35	5.98	6.83	57
33	0.46	0.59	0.70	0.81	0.92	1.03	1.13	1.21	1.30	1.41	1.58	1.81	2.10	2.37	2.62	2.85	3.07	3.31	3.57	3.90	4.34	4.80	5.32	5.92	6.56	7.42	58
34	0.50	0.61	0.74	0.85	0.98	1.08	1.20	1.29	1.39	1.53	1.73	1.99	2.28	2.57	2.82	3.04	3.30	3.57	3.90	4.30	4.76	5.28	5.86	6.50	7.15	8.10	59
35	0.53	0.64	0.77	0.90	1.01	1.14	1.26	1.38	1.52	1.69	1.91	2.17	2.46	2.75	3.02	3.28	3.57	3.90	4.29	4.72	5.23	5.80	6.43	7.08	7.76	8.92	60
36	0.55	0.68	0.81	0.93	1.07	1.19	1.33	1.51	1.68	1.89	2.11	2.37	2.66	2.97	3.27	3.57	3.89	4.27	4.70	5.17	5.75	6.37	7.02	7.73	8.47	9.92	61
37	0.59	0.70	0.84	0.97	1.10	1.25	1.44	1.65	1.87	2.08	2.30	2.54	2.85	3.21	3.55	3.89	4.26	4.67	5.15	5.68	6.30	6.94	7.66	8.45	9.39	11.14	62
38	0.63	0.77	0.91	1.03	1.17	1.35	1.57	1.82	2.06	2.27	2.48	2.74	3.07	3.44	3.83	4.23	4.66	5.12	5.65	6.23	6.87	7.60	8.42	9.36	10.59	12.51	63
39	0.68	0.84	0.98	1.11	1.27	1.47	1.74	1.98	2.23	2.45	2.67	2.96	3.32	3.72	4.15	4.61	5.08	5.63	6.21	6.81	7.53	8.38	9.33	10.55	11.93	13.95	64
40	0.73	0.90	1.05	1.19	1.38	1.63	1.90	2.17	2.40	2.63	2.90	3.24	3.62	4.05	4.52	5.02	5.58	6.17	6.79	7.47	8.32	9.28	10.49	11.81	13.26	15.47	65
41	0.77	0.97	1.15	1.33	1.54	1.80	2.09	2.35	2.60	2.87	3.19	3.57	3.99	4.45	4.98	5.55	6.13	6.76	7.45	8.24	9.23	10.42	11.71	13.20	14.54	17.01	66
42	0.82	1.06	1.28	1.47	1.70	1.97	2.27	2.54	2.83	3.15	3.52	3.94	4.40	4.94	5.55	6.09	6.70	7.41	8.23	9.16	10.32	11.60	13.05	14.47	15.68	18.57	67
43	0.87	1.12	1.36	1.58	1.82	2.09	2.41	2.72	3.06	3.42	3.84	4.32	4.89	5.49	6.08	6.61	7.35	8.18	9.14	10.22	11.49	12.84	14.25	15.59	17.16	20.25	68
44	0.93	1.19	1.44	1.67	1.91	2.22	2.57	2.95	3.31	3.71	4.16	4.79	5.43	6.03	6.59	7.26	8.11	9.09	10.18	11.36	12.69	14.08	15.48	16.94	18.72	21.99	69
45	1.01	1.28	1.52	1.76	2.05	2.37	2.77	3.19	3.62	4.04	4.60	5.33	5.96	6.51	7.14	8.00	9.00	10.11	11.29	12.53	13.89	15.29	16.70	18.60	20.74	24.10	70
46	1.09	1.35	1.59	1.86	2.18	2.58	3.03	3.50	3.97	4.48	5.12	5.86	6.47	7.04	7.91	8.92	10.05	11.27	12.51	13.76	15.13	16.51	18.34	20.63	23.22	26.46	71
47	1.18	1.42	1.67	1.98	2.36	2.79	3.30	3.83	4.35	4.98	5.64	6.36	6.99	7.73	8.80	9.98	11.23	12.50	13.76	15.01	16.32	18.08	20.35	23.11	26.12	29.56	72
48	1.27	1.52	1.81	2.15	2.54	3.01	3.56	4.15	4.75	5.48	6.13	6.86	7.60	8.58	9.84	11.18	12.48	13.76	15.01	16.18	17.85	20.06	22.80	25.99	29.22	32.83	73
49	1.34	1.65	1.98	2.34	2.76	3.25	3.83	4.51	5.14	5.87	6.61	7.47	8.44	9.59	10.99	12.46	13.76	15.01	16.16	17.63	19.81	22.50	25.64				

Proposed 2001 CSO Table -- Male -- Nonsmoker -- 1000qx

Issue Age	Duration																				Ultimate	Att Age					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			21	22	23	24	25
50	1.46	1.80	2.16	2.56	2.97	3.49	4.14	4.85	5.51	6.26	7.17	8.28	9.51	10.85	12.26	13.76	14.99	16.13	17.57	19.58	22.22	25.32	28.69	32.27	35.77	40.03	75
51	1.58	1.99	2.39	2.80	3.24	3.77	4.43	5.14	5.90	6.77	7.90	9.34	10.76	12.16	13.43	14.96	16.09	17.48	19.49	21.95	25.00	28.33	31.84	35.62	39.45	44.13	76
52	1.71	2.18	2.64	3.08	3.53	4.05	4.72	5.50	6.38	7.48	8.87	10.53	12.04	13.06	14.56	16.04	17.40	19.39	21.83	24.72	28.00	31.47	35.18	39.30	43.56	48.89	77
53	1.80	2.35	2.86	3.37	3.85	4.41	5.14	6.06	7.07	8.41	10.03	11.81	12.95	14.22	15.72	17.31	19.29	21.71	24.31	27.69	31.11	34.76	38.82	43.42	48.30	54.45	78
54	1.88	2.52	3.11	3.64	4.15	4.79	5.66	6.76	7.94	9.49	11.21	12.67	14.08	15.57	17.23	19.18	21.58	24.23	27.23	30.79	34.40	38.39	42.92	48.16	53.80	60.87	79
55	1.97	2.70	3.36	3.91	4.48	5.26	6.31	7.58	8.90	10.55	11.97	13.71	15.42	17.15	19.08	21.45	24.14	27.00	30.25	34.05	37.99	42.45	47.61	53.67	60.16	67.87	80
56	2.07	2.89	3.59	4.21	4.88	5.83	7.06	8.47	9.87	11.24	12.92	14.90	16.95	18.97	21.33	24.12	26.97	29.94	33.39	37.56	41.97	47.07	53.06	60.01	67.10	75.84	81
57	2.18	3.05	3.84	4.58	5.39	6.50	7.88	9.38	10.82	12.47	14.41	16.57	18.75	21.20	24.08	26.93	29.90	33.03	36.83	41.51	46.54	52.46	59.34	66.94	74.99	84.14	82
58	2.34	3.25	4.12	5.00	6.01	7.26	8.72	10.24	11.67	13.52	15.72	18.33	20.95	23.78	26.89	29.85	32.99	36.42	40.68	46.04	51.87	58.68	66.20	74.83	83.22	93.09	83
59	2.53	3.48	4.46	5.49	6.68	8.06	9.58	11.07	12.47	14.55	17.05	20.14	23.49	26.56	29.79	32.92	36.35	40.22	45.10	51.33	58.03	65.47	74.01	83.06	92.07	103.00	84
60	2.78	3.75	4.83	6.03	7.37	8.86	10.41	11.89	13.30	15.64	18.55	22.02	25.97	29.41	32.84	36.27	40.14	44.59	50.27	57.42	64.76	73.19	82.13	91.87	101.83	114.07	85
61	3.06	4.07	5.23	6.56	8.08	9.67	11.24	12.71	14.14	16.84	20.09	23.80	27.89	32.43	36.17	40.03	44.49	49.67	56.21	64.09	72.41	81.24	90.87	101.64	112.80	126.34	86
62	3.38	4.42	5.68	7.15	8.80	10.51	12.14	13.65	15.18	18.19	21.66	25.51	29.82	34.72	39.92	44.36	49.54	55.54	62.72	71.69	80.39	89.91	100.55	112.62	124.98	139.74	87
63	3.61	4.83	6.27	7.88	9.65	11.46	13.20	14.85	16.57	19.80	23.45	27.53	32.19	37.61	43.97	49.39	55.38	61.94	70.13	79.60	89.00	99.53	111.45	124.81	138.26	154.10	88
64	3.80	5.27	6.90	8.68	10.60	12.53	14.43	16.31	18.24	21.66	25.55	30.01	35.20	41.30	48.57	55.20	61.75	69.24	77.86	88.15	98.55	110.34	123.54	138.11	152.50	169.25	89
65	3.96	5.70	7.58	9.58	11.65	13.75	15.82	17.90	20.07	23.75	28.01	32.99	38.84	45.83	54.13	61.53	69.01	76.86	86.19	97.62	109.28	122.35	136.75	152.39	167.54	185.06	90
66	4.10	6.33	8.40	10.55	12.90	15.14	17.33	19.59	22.07	26.09	30.86	36.46	43.16	51.11	60.24	68.82	76.62	85.06	95.38	108.18	121.10	135.37	150.85	167.41	183.21	199.93	91
67	4.37	7.04	9.30	11.63	14.31	16.68	19.01	21.44	24.20	28.70	34.06	40.48	48.10	56.84	67.14	76.42	84.82	94.15	105.74	119.89	134.02	149.33	165.73	183.08	197.94	215.43	92
68	4.92	7.82	10.32	12.83	15.62	18.44	21.24	24.07	26.97	32.09	38.27	45.60	54.04	63.99	75.01	84.62	93.91	104.39	117.20	132.68	147.84	164.08	181.27	197.82	213.33	231.78	93
69	5.45	8.70	11.45	14.15	16.43	20.46	23.31	26.11	29.38	35.22	42.18	50.21	59.68	70.20	82.10	93.72	104.14	115.74	129.74	146.40	162.49	179.50	195.92	213.25	231.69	249.05	94
70	6.04	9.69	12.71	15.63	17.25	22.60	25.30	28.30	34.12	40.95	48.83	58.11	68.45	80.13	93.56	103.95	115.49	128.15	143.18	160.91	177.75	194.00	211.17	231.64	248.92	267.19	95
71	7.34	10.80	14.11	16.51	19.87	24.49	27.21	33.73	37.98	45.53	54.41	64.33	75.57	88.49	103.48	115.31	127.91	141.46	157.42	176.06	192.16	209.19	231.61	248.85	267.08	283.79	96
72	8.97	12.01	15.64	18.99	22.43	26.07	30.01	34.38	39.41	47.62	56.77	67.19	79.22	93.20	109.31	127.65	141.24	155.56	172.30	190.38	207.26	231.57	248.80	267.06	283.79	301.49	97
73	10.26	14.31	17.98	21.31	24.48	27.75	31.43	37.69	41.72	50.29	60.01	71.27	84.39	99.53	116.84	136.28	155.36	170.33	186.38	205.41	231.54	248.77	267.00	283.79	301.49	320.38	98
74	11.86	15.74	19.67	23.45	26.91	30.21	36.06	40.41	45.08	54.55	65.20	77.64	92.06	108.56	127.17	147.87	170.17	184.32	201.19	231.51	248.74	266.96	283.79	301.49	320.38	340.54	99
75	13.75	16.85	21.35	26.13	29.43	34.61	39.26	44.22	54.46	64.65	77.14	91.47	107.90	126.42	147.03	170.14	184.24	199.08	231.48	248.71	266.92	283.79	301.49	320.38	340.54	362.10	100
76	14.29	18.71	23.55	28.64	33.17	38.08	43.28	52.70	64.10	76.63	90.89	107.24	125.67	146.19	168.75	183.97	198.78	231.45	248.68	266.88	283.79	301.49	320.38	340.54	362.10	379.21	101
77	14.88	20.25	25.86	31.76	36.91	42.31	50.94	62.53	76.66	87.51	103.47	121.51	141.64	163.80	181.86	198.50	231.12	248.65	266.84	283.79	301.49	320.38	340.54	362.10	379.21	397.44	102
78	15.89	21.85	28.39	35.83	41.44	49.34	61.13	69.87	87.18	103.36	121.38	141.48	163.61	181.65	198.25	230.82	248.32	266.79	283.75	301.49	320.38	340.54	362.10	379.21	397.44	416.84	103
79	17.10	23.74	31.56	40.49	47.68	59.59	68.87	85.58	93.62	110.91	129.99	151.13	173.01	196.03	230.56	248.04	266.49	283.42	301.45	320.38	340.54	362.10	379.21	397.44	416.84	437.48	104
80	18.44	26.34	35.55	46.16	58.22	68.02	84.22	92.56	106.81	125.77	146.52	168.06	191.64	230.34	247.79	266.21	283.13	301.15	320.33	340.54	362.10	379.21	397.44	416.84	437.48	459.13	105
81	20.08	29.60	40.62	53.17	67.29	82.94	91.58	105.74	120.80	141.38	162.56	190.42	230.14	247.57	265.98	282.88	300.88	320.06	340.51	362.10	379.21	397.44	416.84	437.48	459.13	482.15	106
82	22.19	33.80	46.93	61.61	77.83	90.65	104.75	119.79	128.40	162.32	190.27	229.96	247.38	265.77	282.66	300.65	319.83	340.27	362.07	379.21	397.44	416.84	437.48	459.13	482.15	506.62	107
83	25.30	39.24	54.65	71.51	89.87	103.88	118.95	127.65	161.77	190.14	229.80	247.21	265.59	282.47	300.45	319.62	340.06	361.86	379.18	397.44	416.84	437.48	459.13	482.15	506.62	532.63	108
84	29.78	46.03	63.66	82.69	103.03	118.15	126.91	161.09	189.70	229.66	247.05	265.43	282.30	300.28	319.44	339.89	361.69	379.04	397.41	416.84	437.48	459.13	482.15	506.62	532.63	560.26	109
85	35.79	54.22	73.98	94.91	117.36	126.21	160.46	189.29	229.18	246.92	265.28	282.16	300.12	319.28	339.73	361.54	378.91	397.31	416.83	437.48	459.13	482.15	506.62	532.63	560.26	589.59	110
86	43.26	63.81	85.59	108.74	125.53	159.84	188.73	228.72	246.45	265.15	282.01	299.99	319.15	339.60	361.41	378.81	397.23	416.78	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	111
87	52.02	75.29	99.61	124.85	159.27	188.19	228.32	246.01	264.70	281.90	299.87	319.02	339.47	361.30	378.71	397.15	416.73	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	653.80	112
88	62.57	89.44	116.63	158.68	187.69	227.93	245.62	264.28	281.48	299.75	318.92	339.36	361.20	378.63	397.09	416.69	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	653.80	688.91	113
89	76.29	107.07	153.05	187.18	227.59	245.25	263.91	281.09	299.37	318.82	339.26	361.10	378.56	397.03	416.66	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	653.80	688.91	726.15	114
90	94.66	146.50	183.28	227.25	244.91	263.55	280.73	299.01	318.47	339.19	361.02	378.50	396.99	416.63	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	653.80	688.91	726.15	765.67	115
91	138.07	178.80	226.91	244.58	263.23	280.40	298.68	318.14	338.88	360.96	378.44	396.94	416.60	437.48	459.13	482.15	506.62	532.63	560.26	589.59	620.74	653.80	688.91	726.15	765.67	807.59	

Proposed 2001 CSO Table -- Male -- Smoker -- 1000qx																																												
Issue Age	Duration																									Ultimate	Att Age																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25																			
0																	0.79	0.97	1.11	1.21	1.27	1.33	1.40	1.46	1.54	1.63	25																	
1																0.76	0.93	1.09	1.18	1.25	1.33	1.40	1.46	1.54	1.63	1.71	26																	
2															0.73	0.89	1.05	1.17	1.25	1.33	1.40	1.46	1.54	1.63	1.70	1.81	27																	
3															0.71	0.87	1.03	1.16	1.25	1.33	1.40	1.46	1.54	1.63	1.68	1.76	1.82	28																
4															0.71	0.87	1.03	1.16	1.24	1.33	1.40	1.46	1.54	1.63	1.68	1.74	1.77	1.81	29															
5															0.70	0.87	1.03	1.16	1.24	1.33	1.39	1.45	1.54	1.63	1.65	1.68	1.71	1.74	1.77	1.80	30													
6															0.87	1.03	1.16	1.24	1.31	1.39	1.43	1.52	1.61	1.63	1.66	1.69	1.72	1.75	1.78	1.80	31													
7															0.70	0.87	1.03	1.16	1.24	1.31	1.39	1.43	1.52	1.61	1.63	1.66	1.69	1.72	1.75	1.78	1.82	32												
8															0.69	0.87	1.03	1.16	1.24	1.31	1.39	1.43	1.52	1.61	1.63	1.66	1.69	1.72	1.75	1.78	1.82	1.87	33											
9															0.69	0.87	1.03	1.16	1.24	1.31	1.39	1.43	1.52	1.61	1.63	1.66	1.69	1.72	1.75	1.78	1.82	1.87	34											
10															0.69	0.86	1.03	1.15	1.23	1.29	1.34	1.39	1.48	1.56	1.63	1.66	1.69	1.72	1.75	1.78	1.82	1.87	1.94	2.00	35									
11															0.69	0.86	1.03	1.13	1.21	1.27	1.33	1.38	1.46	1.55	1.62	1.66	1.69	1.72	1.75	1.78	1.82	1.87	1.94	2.00	2.11	36								
12															0.86	1.03	1.13	1.20	1.26	1.32	1.36	1.45	1.55	1.62	1.66	1.69	1.72	1.75	1.78	1.82	1.87	1.94	2.00	2.11	2.23	37								
13															1.03	1.12	1.19	1.25	1.30	1.35	1.43	1.52	1.60	1.66	1.69	1.72	1.75	1.78	1.82	1.87	1.94	2.00	2.11	2.23	2.40	38								
14															0.69	0.86	1.03	1.12	1.18	1.23	1.29	1.33	1.40	1.50	1.58	1.66	1.69	1.72	1.75	1.78	1.82	1.87	1.94	2.00	2.11	2.23	2.40	2.57	39					
15															1.15	1.22	1.27	1.32	1.39	1.49	1.55	1.65	1.69	1.72	1.75	1.78	1.82	1.87	1.93	2.00	2.11	2.23	2.40	2.57	2.77	3.03	40							
16															0.69	0.86	1.03	1.11	1.15	1.20	1.26	1.30	1.37	1.45	1.52	1.60	1.66	1.72	1.75	1.78	1.82	1.87	1.93	2.00	2.11	2.23	2.40	2.57	3.03	41				
17															0.86	1.03	1.11	1.14	1.19	1.26	1.30	1.35	1.44	1.49	1.55	1.61	1.65	1.70	1.73	1.77	1.87	1.93	2.00	2.10	2.22	2.40	2.57	2.77	3.03	3.33	42			
18															1.03	1.09	1.13	1.18	1.23	1.27	1.34	1.41	1.46	1.50	1.54	1.59	1.63	1.69	1.77	1.79	1.93	1.99	2.10	2.22	2.40	2.57	2.77	3.03	3.33	3.69	43			
19															1.05	1.09	1.14	1.19	1.23	1.29	1.36	1.41	1.45	1.48	1.52	1.55	1.61	1.70	1.79	1.87	1.99	2.10	2.22	2.39	2.57	2.76	3.03	3.33	3.69	4.12	44			
20															1.03	1.08	1.13	1.17	1.22	1.30	1.33	1.37	1.41	1.44	1.48	1.52	1.61	1.72	1.87	1.99	2.10	2.22	2.39	2.57	2.76	3.02	3.33	3.69	4.12	4.57	4.99	5.46	45	
21															1.00	1.04	1.08	1.13	1.19	1.23	1.29	1.31	1.36	1.40	1.46	1.54	1.64	1.77	1.94	2.10	2.22	2.39	2.57	2.76	3.02	3.33	3.69	4.12	4.57	4.99	5.46	47		
22															0.95	1.00	1.04	1.10	1.15	1.19	1.23	1.27	1.31	1.39	1.46	1.55	1.66	1.83	2.03	2.22	2.39	2.57	2.76	3.02	3.33	3.69	4.12	4.57	4.99	5.46	47			
23															0.91	0.95	1.01	1.08	1.13	1.19	1.22	1.26	1.32	1.40	1.50	1.60	1.75	1.91	2.15	2.38	2.57	2.76	3.02	3.33	3.69	4.12	4.54	4.99	5.46	5.72	48			
24															0.84	0.90	0.98	1.07	1.14	1.19	1.23	1.29	1.36	1.47	1.56	1.68	1.82	2.03	2.31	2.54	2.76	3.02	3.33	3.69	4.11	4.54	4.99	5.42	5.72	6.02	6.49	49		
25															0.74	0.84	0.97	1.09	1.16	1.22	1.27	1.33	1.43	1.54	1.66	1.78	1.96	2.18	2.45	2.75	3.02	3.33	3.69	4.10	4.54	4.99	5.39	5.72	6.02	6.45	6.96	7.66	8.45	50
26															0.70	0.84	0.99	1.13	1.20	1.25	1.31	1.41	1.50	1.64	1.77	1.92	2.11	2.38	2.66	3.01	3.33	3.69	4.09	4.54	4.99	5.39	5.72	6.02	6.45	6.96	7.66	8.45	51	
27															0.68	0.86	1.03	1.16	1.25	1.31	1.41	1.50	1.62	1.77	1.92	2.10	2.30	2.61	2.90	3.30	3.69	4.08	4.54	4.99	5.38	5.72	6.02	6.45	6.96	7.66	8.45	9.44	52	
28															0.70	0.90	1.07	1.20	1.31	1.39	1.48	1.60	1.73	1.91	2.10	2.30	2.55	2.88	3.21	3.65	4.07	4.54	4.99	5.37	5.72	6.02	6.45	6.96	7.66	8.45	9.44	53		
29															0.70	0.92	1.10	1.24	1.39	1.48	1.60	1.73	1.87	2.10	2.30	2.55	2.81	3.14	3.55	4.05	4.54	4.99	5.36	5.72	6.02	6.45	6.96	7.66	8.45	9.44	54			
30															0.72	0.94	1.11	1.29	1.45	1.60	1.73	1.87	2.06	2.30	2.51	2.77	3.05	3.42	3.89	4.41	4.90	5.35	5.72	6.02	6.45	6.96	7.66	8.45	9.37	10.56	55			
31															0.70	0.94	1.14	1.33	1.52	1.70	1.87	2.03	2.21	2.42	2.66	2.97	3.35	3.80	4.32	4.83	5.29	5.72	6.02	6.45	6.96	7.66	8.45	9.37	10.34	11.70	56			
32															0.70	0.93	1.16	1.36	1.56	1.75	1.96	2.14	2.31	2.52	2.81	3.21	3.72	4.26	4.78	5.26	5.71	6.02	6.45	6.96	7.66	8.45	9.37	10.34	11.47	12.91	57			
33															0.76	0.99	1.22	1.44	1.66	1.87	2.08	2.26	2.45	2.67	3.02	3.50	4.10	4.66	5.18	5.66	6.02	6.45	6.96	7.66	8.45	9.37	10.33	11.47	12.52	13.86	58			
34															0.81	1.05	1.30	1.52	1.77	2.00	2.23	2.44	2.64	2.92	3.33	3.87	4.47	5.08	5.60	6.02	6.45	6.96	7.66	8.45	9.37	10.33	11.47	12.52	13.44	14.96	59			
35															0.88	1.11	1.37	1.61	1.86	2.13	2.37	2.62	2.91	3.27	3.72	4.26	4.87	5.49	6.02	6.45	6.96	7.66	8.45	9.37	10.33	11.47	12.51	13.44	14.34	16.29	60			
36															0.93	1.17	1.43	1.69	1.96	2.22	2.51	2.87	3.25	3.69	4.14	4.68	5.29	5.95	6.44	6.96	7.66	8.45	9.37	10.33	11.47	12.51	13.43	14.33	15.43	16.95	19.93	61		
37															0.99	1.21	1.49	1.76	2.03	2.34	2.72	3.18	3.64	4.08	4.54	5.06	5.72	6.44	6.96	7.66	8.45	9.37	10.33	11.47	12.51	13.43	14.33	15.43	16.95	19.93	62			
38															1.06	1.34	1.63	1.88	2.16	2.53	3.01	3.54	4.04	4.50	4.95	5.49	6.16	6.96	7.65	8.45	9.37	10.33	11.47	12.51	13.43	14.33	15.43	16.94	18.92	22.14	63			
39															1.16	1.48	1.76	2.02	2.34	2.78	3.35	3.89	4.43	4.89	5.35	5.95	6.71	7.55	8.45	9.37	10.33	11.47	12.51	13.43	14.33	15.43	16.94	18.92	21.19	24.40	64			
40															1.24	1.59	1.91	2.21	2.58	3.12	3.70	4.29	4.79	5.30	5.86	6.57	7.37	8.28	9.24	10.32	11.47	12.51	13.43	14.33	15.43	16.94	18.91	21.19	23.46	26.63	65			
41															1.32	1.72	2.11	2.46	2.91	3.49	4.12	4.67	5.22	5.81	6.50	7.29	8.18	9.14	10.27	11.46	12.51	13.43	14.33	15.42	16.94	18.91	21.18	23.46	24.99	28.78	66			
42															1.41	1.90	2.35	2.77	3.26	3.84	4.47	5.09	5.71																					

Proposed 2001 CSO Table -- Male -- Smoker -- 1000qx																											
Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	2.67	3.40	4.16	4.97	5.85	6.91	8.26	9.70	11.05	12.58	14.33	16.51	18.84	21.17	23.44	24.97	26.46	28.47	30.78	33.50	36.88	40.72	44.71	48.66	52.65	57.29	75
51	2.95	3.80	4.65	5.52	6.39	7.48	8.79	10.25	11.74	13.45	15.65	18.42	21.07	23.44	24.97	26.46	28.47	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	76
52	3.24	4.23	5.20	6.10	7.00	8.03	9.36	10.91	12.63	14.75	17.42	20.57	23.30	24.95	26.46	28.47	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	77
53	3.42	4.60	5.68	6.69	7.64	8.73	10.17	11.97	13.92	16.48	19.52	22.79	24.65	26.46	28.47	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	78
54	3.57	4.97	6.23	7.30	8.28	9.51	11.22	13.33	15.56	18.47	21.61	24.12	26.43	28.47	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	79
55	3.76	5.38	6.77	7.86	8.96	10.45	12.50	14.91	17.35	20.34	22.78	25.72	28.47	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	80
56	3.94	5.72	7.21	8.45	9.75	11.59	13.98	16.67	19.21	21.58	24.47	27.81	30.78	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	81
57	4.10	6.03	7.68	9.16	10.77	12.94	15.61	18.43	21.01	23.89	27.19	30.76	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	82
58	4.41	6.40	8.22	10.00	12.00	14.46	17.26	20.06	22.56	25.83	29.53	33.50	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	83
59	4.78	6.83	8.88	10.98	13.34	16.05	18.92	21.61	24.03	27.68	31.88	36.88	40.72	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	84
60	5.26	7.37	9.62	12.05	14.75	17.63	20.50	23.15	25.50	29.64	34.51	40.16	44.70	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	85
61	5.82	7.99	10.41	13.12	16.12	19.20	22.08	24.63	27.00	31.79	37.19	43.10	48.66	52.64	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	153.39	86
62	6.45	8.69	11.28	14.26	17.55	20.82	23.76	26.36	28.87	34.22	39.87	45.88	52.27	57.19	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	153.39	167.69	87
63	6.88	9.50	12.47	15.75	19.21	22.65	25.78	28.61	31.42	37.12	42.94	49.16	55.94	62.23	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	153.39	167.69	182.72	88
64	7.22	10.36	13.75	17.33	21.07	24.72	28.12	31.33	34.51	40.48	46.57	53.23	60.65	67.94	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	153.39	167.69	182.72	198.27	89
65	7.46	11.21	15.08	19.11	23.13	27.04	30.75	34.30	37.90	44.25	50.82	58.14	66.39	74.54	82.05	90.07	99.05	108.11	117.61	127.94	140.09	153.39	167.69	182.72	198.27	214.13	90
66	7.62	12.37	16.60	20.80	25.28	29.32	33.07	36.78	40.71	47.43	54.61	62.73	72.08	82.05	90.07	99.04	108.10	117.60	127.93	140.07	151.91	167.61	182.72	198.27	214.13	228.43	91
67	8.06	13.69	18.21	22.68	27.66	31.77	35.58	39.41	43.62	50.82	58.77	67.94	78.41	89.83	99.03	108.09	117.59	127.91	140.05	151.16	166.28	181.96	198.20	214.13	228.43	243.02	92
68	9.10	15.13	20.02	24.71	29.72	34.53	39.02	43.30	47.46	55.36	64.36	74.64	85.95	98.71	108.08	117.56	127.88	140.01	150.38	164.59	180.32	196.66	213.43	228.43	243.02	258.10	93
69	10.05	16.71	21.99	26.89	30.69	37.65	41.95	45.90	50.42	59.06	69.02	80.00	92.47	105.56	117.54	127.84	139.96	149.60	164.23	178.29	194.69	211.54	226.98	243.02	258.10	273.74	94
70	11.10	18.48	24.15	29.28	31.59	40.80	44.56	48.54	57.13	66.82	77.73	90.13	103.26	117.42	127.79	139.89	148.80	159.73	177.61	192.30	209.32	225.03	243.02	258.10	273.74	291.05	95
71	13.66	20.44	26.51	30.42	35.89	43.33	46.80	53.78	61.92	72.10	84.11	96.93	110.83	126.17	139.83	148.00	157.48	175.64	191.23	206.39	222.32	243.02	258.10	273.74	291.05	306.33	96
72	16.85	22.55	29.07	34.61	39.91	45.15	50.51	56.13	62.32	72.93	84.95	98.11	112.73	129.10	147.20	155.25	174.60	187.27	204.90	218.86	243.02	258.10	273.74	291.05	306.33	322.44	97
73	19.27	26.84	33.13	38.32	42.78	47.05	51.59	59.97	64.01	74.50	86.95	100.86	116.53	133.97	153.09	173.62	185.32	204.52	216.92	243.02	258.10	273.74	291.05	306.33	322.44	339.45	98
74	22.27	29.24	35.80	41.54	46.20	50.17	57.96	62.57	67.13	82.42	98.16	106.40	123.24	141.81	161.94	183.37	202.05	216.13	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	99
75	25.71	30.87	38.25	45.54	49.56	56.30	61.50	66.87	80.33	96.95	105.39	122.27	140.93	161.22	182.91	199.60	215.45	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	100
76	26.15	33.72	41.53	49.09	55.02	60.99	66.71	78.30	95.75	104.87	121.17	140.46	160.90	178.83	197.18	214.79	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	101
77	26.66	35.89	44.85	53.60	60.31	66.54	77.59	94.54	104.57	120.54	136.69	157.04	174.84	194.79	214.12	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	102
78	27.89	37.96	48.33	59.45	66.36	76.71	93.33	104.24	119.89	133.28	149.37	170.95	192.44	213.46	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	103
79	29.51	40.56	52.91	66.20	75.58	92.16	103.96	119.29	131.58	145.65	167.14	190.11	212.79	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	104
80	31.21	44.22	58.59	74.23	91.00	103.66	118.69	129.89	144.00	162.85	185.71	208.38	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	105
81	33.34	48.83	65.79	84.05	103.39	118.11	128.26	143.00	160.39	180.42	207.74	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	106
82	36.18	54.81	74.72	95.72	117.56	126.69	142.05	159.55	178.03	207.10	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	107
83	40.52	62.46	85.36	109.01	125.14	141.12	158.71	175.67	206.45	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	108
84	46.93	71.93	97.55	123.60	140.19	157.88	173.35	205.81	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	109
85	55.48	83.11	111.11	139.26	157.05	171.06	205.17	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	110
86	65.85	96.06	126.24	156.24	168.80	204.54	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	621.35	111
87	77.84	111.08	143.62	166.58	203.91	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	621.35	654.35	112
88	91.94	129.05	164.39	203.27	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	621.35	654.35	689.38	113
89	109.59	150.88	202.65	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	621.35	654.35	689.38	726.56	114
90	132.90	202.03	243.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92	421.83	438.57	460.15	483.10	507.51	533.44	561.01	590.27	621.35	654.35	689.38	726.56	766.01	115
91	189.56	240.02	258.10	273.74	291.05	306.33	322.44	339.45	357.42	376.40	390.77	405.92</															

Proposed 2001 CSO Table -- Female -- Composite -- 1000qx																												
Issue Age	Duration																									Ultimate	Att Age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
0	0.48	0.35	0.26	0.20	0.19	0.18	0.18	0.21	0.21	0.21	0.22	0.23	0.27	0.30	0.33	0.35	0.39	0.41	0.43	0.46	0.47	0.48	0.50	0.50	0.52	0.54	0.54	25
1	0.35	0.26	0.19	0.19	0.18	0.18	0.20	0.21	0.21	0.21	0.23	0.27	0.28	0.32	0.35	0.38	0.40	0.42	0.45	0.47	0.48	0.50	0.50	0.52	0.54	0.56	0.60	26
2	0.26	0.19	0.19	0.18	0.18	0.18	0.21	0.21	0.21	0.21	0.25	0.27	0.32	0.34	0.37	0.40	0.42	0.45	0.46	0.48	0.50	0.50	0.52	0.54	0.56	0.60	0.63	27
3	0.19	0.19	0.18	0.18	0.18	0.19	0.21	0.21	0.21	0.24	0.25	0.31	0.34	0.37	0.39	0.41	0.44	0.46	0.47	0.49	0.50	0.52	0.54	0.56	0.60	0.63	0.66	28
4	0.19	0.18	0.18	0.18	0.19	0.19	0.21	0.21	0.23	0.25	0.31	0.33	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.50	0.52	0.54	0.56	0.60	0.63	0.66	0.66	29
5	0.18	0.18	0.18	0.19	0.19	0.19	0.21	0.22	0.25	0.29	0.33	0.36	0.38	0.40	0.43	0.45	0.46	0.49	0.50	0.52	0.54	0.56	0.60	0.63	0.66	0.68	0.73	30
6	0.18	0.18	0.19	0.19	0.19	0.20	0.22	0.25	0.29	0.33	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.60	0.63	0.66	0.68	0.73	0.77	31
7	0.18	0.19	0.19	0.19	0.19	0.22	0.24	0.29	0.33	0.36	0.37	0.39	0.42	0.43	0.45	0.48	0.49	0.52	0.54	0.56	0.60	0.63	0.66	0.68	0.73	0.77	0.82	32
8	0.19	0.19	0.19	0.19	0.20	0.24	0.27	0.32	0.35	0.37	0.39	0.41	0.43	0.44	0.47	0.49	0.51	0.54	0.56	0.60	0.63	0.66	0.68	0.73	0.77	0.82	0.88	33
9	0.19	0.19	0.19	0.20	0.22	0.27	0.32	0.35	0.36	0.38	0.41	0.42	0.44	0.46	0.48	0.51	0.54	0.56	0.59	0.63	0.66	0.68	0.73	0.77	0.82	0.88	0.97	34
10	0.19	0.19	0.20	0.22	0.25	0.31	0.34	0.36	0.37	0.40	0.41	0.43	0.46	0.47	0.50	0.53	0.55	0.59	0.63	0.66	0.68	0.73	0.77	0.82	0.88	1.03	1.11	35
11	0.19	0.20	0.22	0.25	0.31	0.33	0.35	0.37	0.39	0.41	0.42	0.45	0.47	0.49	0.53	0.55	0.58	0.62	0.66	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.17	36
12	0.20	0.22	0.25	0.31	0.33	0.34	0.36	0.38	0.40	0.41	0.44	0.46	0.49	0.52	0.54	0.58	0.62	0.65	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.17	1.30	37
13	0.22	0.25	0.31	0.33	0.34	0.35	0.37	0.39	0.40	0.43	0.45	0.48	0.51	0.54	0.57	0.62	0.65	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.10	1.23	1.48	38
14	0.25	0.31	0.33	0.34	0.34	0.36	0.38	0.39	0.42	0.43	0.47	0.50	0.53	0.57	0.61	0.65	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.59	39
15	0.31	0.33	0.34	0.34	0.36	0.37	0.38	0.40	0.42	0.45	0.49	0.52	0.56	0.60	0.64	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.30	1.74	40
16	0.33	0.34	0.34	0.35	0.36	0.37	0.39	0.41	0.44	0.47	0.50	0.55	0.59	0.63	0.68	0.73	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.30	1.38	1.94	41
17	0.34	0.34	0.35	0.35	0.36	0.38	0.40	0.43	0.46	0.49	0.53	0.58	0.62	0.67	0.73	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.30	1.38	1.48	2.05	42
18	0.33	0.34	0.34	0.35	0.37	0.38	0.41	0.45	0.48	0.52	0.57	0.61	0.66	0.72	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.30	1.38	1.48	1.59	2.27	43
19	0.33	0.33	0.34	0.36	0.37	0.40	0.43	0.46	0.51	0.55	0.60	0.65	0.71	0.77	0.82	0.88	0.97	1.03	1.09	1.16	1.23	1.30	1.38	1.48	1.59	1.72	2.48	44
20	0.31	0.32	0.34	0.35	0.38	0.42	0.45	0.49	0.54	0.58	0.64	0.70	0.76	0.82	0.88	0.96	1.02	1.09	1.16	1.23	1.30	1.38	1.48	1.59	1.72	1.87	2.64	45
21	0.29	0.31	0.33	0.36	0.40	0.43	0.48	0.52	0.57	0.62	0.68	0.74	0.80	0.87	0.94	1.01	1.07	1.15	1.22	1.30	1.38	1.48	1.59	1.72	1.87	2.05	2.84	46
22	0.28	0.30	0.34	0.38	0.41	0.46	0.51	0.55	0.61	0.67	0.73	0.79	0.85	0.93	0.99	1.06	1.14	1.21	1.29	1.38	1.48	1.59	1.72	1.87	2.05	2.27	3.08	47
23	0.26	0.30	0.34	0.38	0.43	0.48	0.53	0.59	0.65	0.71	0.77	0.84	0.91	0.98	1.04	1.12	1.19	1.28	1.38	1.48	1.59	1.72	1.87	2.05	2.27	2.50	3.34	48
24	0.26	0.31	0.35	0.40	0.45	0.50	0.56	0.62	0.69	0.75	0.82	0.89	0.96	1.02	1.10	1.18	1.26	1.36	1.47	1.59	1.72	1.87	2.05	2.27	2.50	2.78	3.64	49
25	0.25	0.31	0.36	0.42	0.47	0.53	0.60	0.66	0.73	0.79	0.87	0.93	1.00	1.08	1.15	1.25	1.34	1.45	1.58	1.72	1.87	2.05	2.27	2.50	2.78	3.08	3.94	50
26	0.26	0.32	0.38	0.43	0.49	0.56	0.63	0.69	0.76	0.84	0.91	0.97	1.06	1.13	1.22	1.32	1.44	1.56	1.71	1.87	2.05	2.27	2.50	2.78	3.08	3.41	4.27	51
27	0.28	0.34	0.39	0.45	0.52	0.59	0.65	0.72	0.80	0.87	0.94	1.02	1.10	1.20	1.30	1.42	1.55	1.69	1.86	2.05	2.27	2.50	2.78	3.08	3.41	3.79	4.65	52
28	0.30	0.35	0.41	0.48	0.54	0.61	0.68	0.76	0.83	0.90	0.99	1.07	1.17	1.27	1.39	1.53	1.67	1.84	2.04	2.26	2.50	2.78	3.08	3.41	3.79	4.20	5.06	53
29	0.31	0.38	0.44	0.50	0.57	0.64	0.71	0.79	0.86	0.95	1.03	1.13	1.24	1.36	1.50	1.65	1.83	2.03	2.25	2.49	2.78	3.08	3.41	3.79	4.20	4.63	5.49	54
30	0.34	0.40	0.46	0.53	0.59	0.67	0.74	0.81	0.90	0.99	1.09	1.20	1.33	1.47	1.63	1.80	2.01	2.24	2.48	2.77	3.08	3.41	3.79	4.20	4.63	5.10	5.96	55
31	0.37	0.43	0.49	0.55	0.63	0.70	0.77	0.86	0.94	1.05	1.16	1.29	1.44	1.60	1.78	1.99	2.22	2.47	2.76	3.07	3.41	3.79	4.20	4.63	5.10	5.63	6.49	56
32	0.39	0.45	0.51	0.59	0.65	0.73	0.82	0.90	1.01	1.13	1.26	1.41	1.57	1.75	1.97	2.20	2.45	2.74	3.05	3.39	3.77	4.19	4.63	5.10	5.63	6.19	7.05	57
33	0.41	0.47	0.54	0.61	0.69	0.78	0.87	0.97	1.09	1.23	1.38	1.54	1.73	1.94	2.18	2.43	2.72	3.03	3.37	3.75	4.17	4.61	5.10	5.62	6.19	6.80	7.66	58
34	0.42	0.49	0.56	0.64	0.73	0.82	0.93	1.06	1.19	1.34	1.51	1.70	1.92	2.15	2.40	2.70	3.01	3.35	3.73	4.14	4.59	5.07	5.60	6.15	6.76	7.39	8.25	59
35	0.44	0.51	0.58	0.68	0.77	0.89	1.02	1.16	1.31	1.48	1.67	1.89	2.13	2.38	2.67	2.99	3.33	3.71	4.12	4.56	5.05	5.57	6.12	6.72	7.35	8.01	8.87	60
36	0.45	0.53	0.62	0.72	0.83	0.96	1.11	1.27	1.44	1.63	1.85	2.09	2.35	2.63	2.96	3.30	3.68	4.09	4.53	5.01	5.53	6.09	6.67	7.30	7.97	8.68	9.54	61
37	0.47	0.56	0.65	0.77	0.90	1.05	1.21	1.39	1.58	1.81	2.05	2.31	2.59	2.92	3.26	3.64	4.05	4.49	4.98	5.50	6.05	6.64	7.27	7.94	8.65	9.39	10.25	62
38	0.50	0.59	0.70	0.83	0.98	1.14	1.32	1.52	1.75	1.99	2.25	2.54	2.87	3.21	3.59	4.01	4.45	4.94	5.46	6.01	6.60	7.23	7.91	8.62	9.36	10.14	11.00	63
39	0.53	0.64	0.76	0.91	1.07	1.25	1.45	1.68	1.91	2.19	2.48	2.81	3.15	3.54	3.95	4.40	4.89	5.41	5.97	6.56	7.20	7.88	8.59	9.34	10.13	10.96	11.82	64
40	0.58	0.70	0.84	1.00	1.17	1.37	1.60	1.84	2.11	2.40	2.73	3.08	3.47	3.89	4.34	4.83	5.36	5.92	6.51	7.16	7.84	8.57	9.32	10.12	10.96	11.85	12.71	65
41	0.64	0.77	0.93	1.10	1.29	1.52	1.75	2.02	2.32	2.65	3.00	3.39	3.81	4.26	4.76	5.29	5.86	6.46	7.11	7.81	8.54	9.31	10.12	10.96	11.85	12.82	13.68	66
42	0.70	0.86	1.03	1.22	1.44	1.67	1.94	2.23	2.56	2.91	3.29	3.72	4.17	4.67	5.21	5.78	6.39	7.05	7.76	8.50	9.29	10.12	10.96	11.85	12.82	13.89	14.75	67
43	0.78	0.95	1.14	1.36	1.60	1.86	2.15	2.48	2.82	3.20	3.62	4.07	4.57	5.11	5.69	6.31	6.98	7.70	8.46	9.26	10.10	10.96	11.85	12.82	13.89	15.07	15.93	68
44	0.86	1.05	1.28	1.52	1.78	2.07	2.38	2.73	3.11	3.52	3.97	4.46	4.99	5.58	6.20	6.88	7.61	8.39	9.21	10.08	10.96	11.85	12.82	13.89	15.07	16.36	17.22	69
45	0.95	1.18	1.42	1.69	1.98	2.30	2.64	3.02	3.43	3.87	4.35	4.87	5.46	6.08	6.75	7.49	8.29	9.13	10.02	10.96	11.85	12.82	13.89	15.07	16.36	17.81	18.67</	

Proposed 2001 CSO Table -- Female -- Composite -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	1.43	1.85	2.26	2.65	3.07	3.53	4.03	4.57	5.16	5.81	6.51	7.29	8.14	9.07	10.09	11.19	12.40	13.71	15.07	16.36	17.81	19.47	21.30	23.30	25.50	27.90	75
51	1.51	2.05	2.45	2.84	3.29	3.77	4.30	4.87	5.52	6.21	6.98	7.83	8.76	9.78	10.89	12.11	13.44	14.90	16.36	17.81	19.47	21.30	23.30	25.50	27.90	30.53	76
52	1.60	2.26	2.64	3.04	3.49	4.00	4.55	5.17	5.87	6.63	7.46	8.39	9.40	10.53	11.76	13.11	14.60	16.22	17.81	19.47	21.30	23.30	25.50	27.90	30.53	33.41	77
53	1.69	2.42	2.84	3.24	3.70	4.23	4.82	5.48	6.22	7.06	7.97	8.99	10.12	11.35	12.72	14.22	15.87	17.69	19.47	21.30	23.30	25.50	27.90	30.53	33.41	36.58	78
54	1.79	2.59	3.05	3.45	3.92	4.48	5.11	5.82	6.62	7.52	8.53	9.65	10.90	12.28	13.80	15.47	17.31	19.34	21.30	23.30	25.50	27.90	30.53	33.41	36.58	40.05	79
55	1.89	2.77	3.28	3.68	4.18	4.76	5.43	6.18	7.05	8.04	9.15	10.39	11.77	13.30	15.01	16.89	18.94	21.21	23.30	25.50	27.90	30.53	33.41	36.58	40.05	43.86	80
56	2.06	2.95	3.52	3.95	4.46	5.07	5.79	6.61	7.56	8.63	9.85	11.22	12.75	14.47	16.38	18.48	20.79	23.30	25.50	27.90	30.53	33.41	36.58	40.05	43.86	49.11	81
57	2.17	3.14	3.78	4.23	4.79	5.44	6.21	7.11	8.14	9.31	10.64	12.17	13.87	15.78	17.91	20.27	22.86	25.50	27.90	30.53	33.41	36.58	40.05	43.85	48.02	54.95	82
58	2.25	3.35	4.05	4.54	5.15	5.87	6.70	7.69	8.81	10.11	11.57	13.24	15.12	17.25	19.62	22.26	25.17	27.89	30.52	33.40	36.56	40.03	43.83	48.00	52.58	60.81	83
59	2.40	3.54	4.34	4.88	5.53	6.33	7.25	8.34	9.58	11.01	12.63	14.48	16.56	18.91	21.55	24.48	27.74	30.52	33.40	36.56	40.03	43.83	48.00	52.58	57.61	67.27	84
60	2.52	3.73	4.63	5.21	5.94	6.82	7.86	9.06	10.44	12.03	13.84	15.88	18.20	20.81	23.73	26.99	30.51	33.39	36.56	40.02	43.82	47.99	52.57	57.59	63.10	74.45	85
61	2.64	3.92	4.91	5.55	6.35	7.34	8.49	9.83	11.39	13.16	15.19	17.48	20.06	22.96	26.21	29.83	33.38	36.55	40.01	43.81	47.97	52.55	57.56	63.07	69.13	80.99	86
62	2.81	4.12	5.20	5.88	6.77	7.86	9.15	10.66	12.41	14.42	16.69	19.27	22.17	25.41	29.03	33.05	36.54	40.00	43.79	47.95	52.53	57.54	63.04	69.10	75.74	90.79	87
63	3.07	4.34	5.47	6.21	7.17	8.38	9.83	11.54	13.51	15.79	18.36	21.26	24.53	28.17	32.21	36.53	39.99	43.78	47.94	52.51	57.51	63.01	69.05	75.69	82.99	101.07	88
64	3.37	5.26	5.77	6.55	7.60	8.94	10.56	12.49	14.72	17.28	20.20	23.49	27.16	31.24	35.76	39.97	43.76	47.91	52.48	57.48	62.97	69.01	75.63	82.91	90.93	112.02	89
65	3.72	5.56	6.07	6.90	8.05	9.53	11.35	13.52	16.04	18.95	22.25	25.95	30.07	34.66	39.71	43.74	47.89	52.45	57.45	62.93	68.96	75.56	82.83	90.82	99.62	121.92	90
66	3.90	5.92	6.42	7.30	8.56	10.20	12.24	14.68	17.53	20.80	24.52	28.69	33.33	38.47	43.73	47.87	52.43	57.42	62.89	68.91	75.51	82.76	90.74	99.51	109.15	126.85	91
67	4.05	6.29	6.81	7.77	9.16	11.00	13.28	16.02	19.22	22.90	27.08	31.75	36.95	42.68	47.86	52.42	57.41	62.88	68.89	75.48	82.73	90.70	99.46	109.08	119.70	136.88	92
68	4.46	6.71	7.28	8.34	9.88	11.94	14.50	17.57	21.17	25.30	29.97	35.19	41.00	47.38	52.41	57.40	62.87	68.88	75.47	82.71	90.67	99.42	109.04	119.64	131.32	151.64	93
69	4.92	7.16	7.81	9.01	10.76	13.06	15.93	19.38	23.40	28.01	33.22	39.05	45.50	52.40	57.39	62.85	68.87	75.45	82.69	90.64	99.38	108.99	119.57	131.23	144.10	170.31	94
70	5.42	7.67	8.44	9.81	11.80	14.40	17.62	21.48	25.98	31.11	36.91	43.36	50.49	57.38	62.84	68.85	75.43	82.66	90.60	99.34	108.92	119.49	131.12	143.94	158.11	193.66	95
71	6.02	8.23	9.17	10.76	13.04	15.98	19.61	23.91	28.92	34.63	41.04	48.17	56.01	62.82	68.82	75.39	82.62	90.55	99.27	108.84	119.37	130.96	143.73	157.82	173.39	215.66	96
72	8.20	8.85	10.02	11.89	14.50	17.83	21.91	26.72	32.28	38.59	45.67	53.51	62.10	68.80	75.36	82.58	90.50	99.21	108.76	119.26	130.82	143.53	157.53	172.98	190.05	238.48	97
73	8.82	9.58	11.01	13.22	16.21	20.00	24.56	29.92	36.08	43.05	50.83	59.41	68.77	75.33	82.54	90.46	99.15	108.68	119.16	130.68	143.34	157.27	172.61	189.52	208.16	242.16	98
74	9.51	10.45	12.21	14.81	18.24	22.51	27.61	33.57	40.37	48.03	56.55	65.93	75.32	82.53	90.44	99.13	108.65	119.13	130.63	143.28	157.19	172.49	189.34	207.90	228.38	255.23	99
75	10.26	11.52	13.66	16.69	20.59	25.40	31.09	37.68	45.17	53.57	62.88	73.10	82.53	90.44	99.12	108.65	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	100
76	11.21	12.85	15.41	18.92	23.35	28.73	35.05	42.31	50.54	59.72	69.86	80.96	90.44	99.12	108.65	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	101
77	12.48	14.52	17.54	21.56	26.55	32.53	39.52	47.51	56.50	66.51	77.53	89.57	99.12	108.65	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	102
78	14.15	16.63	20.12	24.66	30.25	36.88	44.56	53.31	63.10	73.98	85.92	98.93	108.65	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	103
79	14.91	19.23	23.24	28.33	34.52	41.82	50.22	59.74	70.39	82.15	95.05	108.65	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	104
80	16.51	22.44	26.95	32.61	39.42	47.40	56.55	66.87	78.38	91.07	104.97	119.12	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	105
81	18.38	26.34	31.35	37.57	45.01	53.68	63.59	74.73	87.12	100.77	115.68	130.62	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	443.33	106
82	20.49	30.99	36.49	43.27	51.34	60.70	71.37	83.35	96.64	111.27	127.23	143.26	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	443.33	476.89	107
83	22.60	36.42	42.45	49.77	58.46	68.51	79.93	92.75	106.96	122.59	139.63	157.17	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	443.33	476.89	510.65	108
84	27.34	42.38	49.27	57.12	66.41	77.14	89.32	102.99	118.12	134.76	152.90	172.46	189.30	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	443.33	476.89	510.65	545.81	109
85	32.21	49.20	56.99	65.34	75.21	86.61	99.55	114.04	130.12	147.79	167.08	187.98	207.84	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	443.33	476.89	510.65	545.81	581.77	110
86	41.13	56.92	65.24	74.47	84.90	96.95	110.63	125.97	142.98	161.71	182.16	204.36	228.28	250.83	275.73	297.84	322.21	349.06	378.61	410.57	442.90	476.43	510.65	545.81	581.77	616.33	111
87	47.62	65.16	74.37	84.55	95.50	108.18	122.58	138.75	156.71	176.49	198.12	221.67	247.16	274.66	297.84	322.21	349.06	378.61	410.57	442.90	476.43	510.65	545.81	581.77	616.33	649.85	112
88	58.78	74.28	84.42	95.34	106.99	120.27	135.39	152.37	171.25	192.06	214.86	239.71	266.64	291.15	316.49	343.49	372.13	402.44	434.39	468.00	503.26	540.17	578.74	616.33	649.85	680.37	113
89	71.56	84.33	95.21	106.83	119.44	133.29	149.08	166.87	186.67	208.53	232.50	258.66	283.47	308.33	334.92	363.25	393.33	425.14	458.69	493.99	531.02	569.78	610.28	649.85	680.37	723.39	114
90	84.26	95.12	106.71	119.27	132.81	147.23	163.70	182.28	203.01	225.92	251.10	276.01	300.21	326.24	354.09	383.79	415.31	448.66	483.85	520.86	559.71	600.37	642.88	680.37	723.39	763.41	115
91	95.05	106.62	119.15	132.65	147.00	162.12	179.26	198.64	220.29	244.28	269.04	292.40	317.68	344.88	374.02	405.08	438.08	473.00	509.85	548.63	589.32	631.95	676.51	722.99	763.41	804.93	116
92	106.55	119.06	132.53	146.84	161.89	177.98	195.78	215.94	238.53	262.86	285.17	309.50															

Proposed 2001 CSO Table -- Female -- Nonsmoker -- 1000qx

Issue Age	Duration																				Ultimate	Att Age						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			21	22	23	24	25	
50	1.22	1.58	1.93	2.27	2.65	3.06	3.52	4.01	4.55	5.16	5.83	6.57	7.37	8.27	9.26	10.32	11.48	12.76	14.09	15.34	16.75	18.37	20.13	22.08	24.24	26.64	75	
51	1.30	1.74	2.09	2.43	2.84	3.26	3.75	4.28	4.87	5.52	6.25	7.05	7.94	8.93	10.00	11.18	12.47	13.89	15.32	16.75	18.37	20.13	22.08	24.24	26.56	29.23	76	
52	1.37	1.92	2.25	2.60	3.01	3.46	3.97	4.54	5.18	5.90	6.69	7.57	8.53	9.62	10.82	12.12	13.56	15.14	16.71	18.37	20.13	22.08	24.24	26.56	29.15	32.08	77	
53	1.45	2.05	2.41	2.77	3.19	3.66	4.20	4.82	5.51	6.29	7.15	8.12	9.19	10.39	11.71	13.15	14.78	16.55	18.31	20.13	22.08	24.24	26.56	29.15	31.96	35.23	78	
54	1.53	2.19	2.58	2.95	3.38	3.88	4.45	5.11	5.86	6.70	7.66	8.72	9.91	11.24	12.72	14.34	16.13	18.12	20.07	22.06	24.22	26.56	29.15	31.96	35.09	38.63	79	
55	1.62	2.34	2.77	3.15	3.60	4.12	4.73	5.43	6.24	7.17	8.22	9.40	10.72	12.20	13.85	15.68	17.69	19.92	22.00	24.21	26.56	29.15	31.96	35.09	38.52	42.43	80	
56	1.77	2.51	2.99	3.39	3.86	4.41	5.07	5.83	6.72	7.72	8.87	10.17	11.64	13.31	15.14	17.19	19.47	21.94	24.12	26.54	29.12	31.96	35.08	38.49	42.27	47.59	81	
57	1.87	2.69	3.24	3.65	4.16	4.75	5.46	6.30	7.25	8.36	9.62	11.06	12.69	14.54	16.59	18.88	21.44	24.05	26.44	29.08	31.92	35.05	38.49	42.22	46.37	53.41	82	
58	1.95	2.87	3.49	3.93	4.49	5.15	5.92	6.84	7.88	9.10	10.48	12.07	13.87	15.94	18.21	20.80	23.65	26.35	28.98	31.89	35.01	38.44	42.21	46.36	50.94	59.21	83	
59	2.11	3.05	3.76	4.25	4.85	5.58	6.43	7.43	8.59	9.94	11.47	13.23	15.23	17.50	20.06	22.92	26.11	28.88	31.76	34.98	38.40	42.16	46.31	50.87	55.89	65.62	84	
60	2.22	3.24	4.03	4.56	5.23	6.04	6.99	8.11	9.40	10.89	12.60	14.54	16.79	19.30	22.13	25.31	28.76	31.66	34.83	38.35	42.11	46.24	50.85	55.87	61.33	72.84	85	
61	2.34	3.43	4.30	4.89	5.62	6.52	7.58	8.83	10.29	11.95	13.87	16.04	18.53	21.34	24.49	28.02	31.53	34.72	38.20	42.01	46.18	50.74	55.80	61.30	67.39	79.39	86	
62	2.51	3.64	4.58	5.21	6.02	7.02	8.21	9.61	11.25	13.12	15.28	17.74	20.52	23.67	27.19	31.13	34.57	38.07	41.89	46.08	50.67	55.71	61.22	67.29	74.04	89.25	87	
63	2.74	3.85	4.85	5.53	6.42	7.52	8.86	10.44	12.29	14.42	16.86	19.64	22.77	26.29	30.23	34.47	37.91	41.75	45.93	50.55	55.58	61.13	67.18	73.92	81.28	99.55	88	
64	3.02	4.67	5.14	5.86	6.83	8.06	9.56	11.34	13.43	15.83	18.60	21.75	25.28	29.21	33.61	37.79	41.57	45.77	50.38	55.39	60.98	67.07	73.78	81.13	89.23	110.53	89	
65	3.34	4.96	5.45	6.21	7.27	8.63	10.31	12.32	14.68	17.41	20.55	24.09	28.04	32.49	37.40	41.43	45.58	50.21	55.20	60.75	66.89	73.59	80.97	89.05	98.04	120.65	90	
66	3.52	5.31	5.79	6.61	7.78	9.29	11.18	13.45	16.14	19.22	22.74	26.75	31.22	36.22	41.37	45.52	50.13	55.12	60.67	66.79	73.46	80.83	88.96	97.83	107.62	125.77	91	
67	3.68	5.68	6.17	7.07	8.36	10.07	12.20	14.76	17.77	21.28	25.26	29.75	34.80	40.39	45.51	50.08	55.11	60.65	66.70	73.37	80.71	88.82	97.69	107.54	118.24	135.84	92	
68	4.08	6.08	6.64	7.63	9.08	10.99	13.40	16.28	19.70	23.63	28.11	33.16	38.80	45.04	50.02	55.05	60.58	66.63	73.35	80.69	88.71	97.65	107.40	118.18	130.09	150.78	93	
69	4.50	6.54	7.16	8.28	9.93	12.09	14.79	18.07	21.89	26.31	31.34	36.99	43.26	50.01	55.04	60.50	66.61	73.26	80.60	88.68	97.61	107.35	118.12	130.00	143.01	169.64	94	
70	4.98	7.03	7.78	9.07	10.94	13.39	16.45	20.13	24.44	29.39	34.97	41.27	48.24	55.02	60.49	66.59	73.23	80.57	88.64	97.47	107.18	117.92	129.76	142.85	157.36	192.92	95	
71	5.55	7.59	8.49	10.00	12.16	14.94	18.39	22.53	27.35	32.88	39.11	46.07	53.82	60.46	65.93	72.86	80.29	88.51	97.40	107.09	117.80	129.49	142.51	157.07	172.73	215.03	96	
72	7.56	8.20	9.32	11.10	13.58	16.77	20.67	25.30	30.69	36.85	43.77	51.46	59.94	65.28	72.48	80.10	88.30	97.34	107.01	117.69	129.34	142.31	156.64	172.16	189.50	237.79	97	
73	8.17	8.93	10.29	12.40	15.28	18.89	23.29	28.48	34.49	41.34	48.97	57.45	64.69	72.11	79.84	88.16	97.28	106.93	117.59	129.20	142.12	156.38	171.79	188.80	207.57	241.69	98	
74	8.86	9.79	11.47	13.97	17.26	21.37	26.32	32.13	38.81	46.37	54.80	64.05	71.75	79.60	88.06	97.17	106.81	117.55	129.03	141.92	156.15	171.51	188.62	207.30	227.94	254.74	99	
75	9.61	10.84	12.90	15.82	19.60	24.26	29.80	36.31	43.71	52.07	61.28	71.43	79.44	87.98	97.16	106.81	117.54	129.02	141.91	156.13	171.49	188.58	207.24	227.84	250.35	275.46	100	
76	10.53	12.11	14.59	17.96	22.27	27.51	33.69	40.84	48.99	58.10	68.15	79.20	87.90	97.16	106.80	117.43	129.01	141.77	155.97	171.32	188.40	207.04	227.64	250.35	275.46	297.55	322.19	101
77	11.76	13.73	16.64	20.52	25.36	31.20	38.06	45.94	54.82	64.83	75.78	87.78	97.07	106.80	117.43	129.01	141.77	155.97	171.32	188.40	207.04	227.64	250.35	275.46	297.55	322.19	102	
78	13.35	15.74	19.13	23.53	28.97	35.42	42.98	51.64	61.34	72.24	84.06	97.06	106.80	117.42	128.89	141.76	155.82	171.31	188.23	207.04	227.63	250.35	275.21	297.55	321.89	349.04	103	
79	14.12	18.26	22.14	27.08	33.10	40.27	48.56	57.97	68.55	80.30	93.17	106.69	117.31	128.89	141.63	155.82	171.15	188.22	206.84	227.63	250.34	275.20	297.55	321.89	348.39	378.60	104	
80	15.68	21.37	25.73	31.25	37.90	45.72	54.78	65.02	76.47	89.19	102.98	117.19	128.76	141.49	155.53	171.14	188.04	206.83	227.40	250.11	275.19	297.55	321.89	347.74	378.60	410.56	105	
81	17.52	25.11	29.99	36.06	43.38	51.90	61.71	72.78	85.15	98.86	113.71	128.76	141.49	155.53	170.98	188.04	206.83	227.40	250.11	275.19	297.55	321.89	347.42	378.60	410.56	443.32	106	
82	19.55	29.62	34.99	41.63	49.56	58.80	69.39	81.32	94.64	109.38	125.29	141.35	155.37	170.98	188.04	206.65	227.40	250.10	275.18	297.55	321.89	346.77	378.60	410.56	443.32	476.88	107	
83	21.63	34.89	40.80	48.01	56.58	66.55	77.85	90.67	104.95	120.73	137.77	155.37	170.81	187.85	206.64	227.40	250.10	275.17	297.55	321.89	346.13	378.60	410.56	443.32	476.88	510.64	108	
84	26.21	40.69	47.48	55.23	64.38	75.06	87.24	100.95	116.12	132.85	151.02	170.81	187.85	206.64	227.18	250.09	275.16	297.28	321.89	345.48	378.60	410.56	443.32	476.88	510.64	545.80	109	
85	30.97	47.36	55.05	63.29	73.12	84.43	97.40	112.00	128.15	145.96	165.32	186.37	206.44	227.18	249.85	275.15	297.28	321.89	345.15	378.60	410.56	443.32	476.88	510.64	545.80	581.76	110	
86	39.61	54.93	63.20	72.33	82.69	94.78	108.56	123.95	141.09	160.01	180.59	202.98	227.17	249.83	274.89	297.28	321.89	344.51	378.60	410.56	443.32	476.88	510.64	545.80	581.76	616.32	111	
87	45.98	63.05	72.16	82.34	93.27	105.95	120.50	136.78	154.92	174.97	196.79	220.58	246.18	273.81	297.28	321.89	343.86	378.60	410.56	442.89	476.42	510.64	545.80	581.76	616.32	649.84	112	
88	56.89	72.06	82.14	93.02	104.79	118.12	133.35	150.50	169.63	190.78	213.64	238.79	265.89	290.60	316.18	343.47	372.12	402.43	434.38	467.99	503.25	540.16	578.73	616.32	649.84	680.36	113	
89	69.43	82.04	92.89	104.53	117.19	131.16	147.12	165.13	185.26	207.34	231.62	257.93	282.94	308.03	334.90	363.24	393.32	425.13	458.68	493.98	531.01	569.77	610.27	649.84	680.36	723.38	114	
90	81.97	92.80	104.41	117.03	130.57	145.29	162.00	180.74	201.86	225.06	250.39	275.49	299.92	326.22	354.08	383.78	415.30	448.65	483.84	520.85	559.70	600.36	642.87	680.36	723.38	763.40	115	
91	92.73	104.31	116.91	130.40	144.93	160.28	177.74	197.32	219.24	243.59	268.54	292.11	317.37	344.87	374.01	405.07	438.07	472.99	509.84	548.62	589.31	631.94	676.50	722.98	763.40	804.92	116	
92	104.25	116.82	130.28	144.76	160.05	176.30	194.48	214.91	237.63	262.37	284.89	309.20	335.															

Proposed 2001 CSO Table -- Female -- Smoker -- 1000qx

Issue Age	Duration																									Ultimate	Att Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
50	2.35	3.14	3.89	4.61	5.39	6.21	7.10	8.07	9.10	10.23	11.42	12.74	14.14	15.65	17.29	18.99	20.83	22.79	24.63	26.46	28.88	31.56	34.50	37.73	41.26	45.23	75
51	2.50	3.52	4.26	4.98	5.80	6.66	7.61	8.63	9.75	10.95	12.25	13.66	15.18	16.82	18.59	20.46	22.45	24.58	26.22	28.60	31.26	34.18	37.35	40.85	44.66	48.96	76
52	2.66	3.92	4.64	5.37	6.19	7.10	8.09	9.18	10.39	11.70	13.09	14.62	16.28	18.06	19.99	22.03	24.23	25.96	28.33	30.98	33.87	36.99	40.43	44.20	48.31	52.97	77
53	2.85	4.24	5.03	5.76	6.60	7.55	8.60	9.76	11.04	12.47	13.99	15.66	17.47	19.42	21.53	23.77	25.71	28.06	30.68	33.56	36.70	40.03	43.75	47.81	52.25	57.29	78
54	3.03	4.58	5.44	6.17	7.03	8.02	9.15	10.39	11.76	13.28	14.96	16.80	18.78	20.95	23.27	25.45	27.81	30.39	33.27	36.40	39.76	43.32	47.34	51.71	56.52	61.96	79
55	3.21	4.95	5.90	6.64	7.54	8.56	9.75	11.06	12.55	14.22	16.05	18.07	20.26	22.63	25.21	27.53	30.11	32.96	36.10	39.50	43.08	46.86	51.19	55.93	61.10	66.99	80
56	3.50	5.23	6.29	7.05	7.97	9.05	10.30	11.71	13.33	15.13	17.13	19.34	21.75	24.41	27.27	29.84	32.70	35.82	39.22	42.86	46.69	50.79	55.46	60.55	66.12	74.07	81
57	3.64	5.52	6.70	7.49	8.48	9.62	10.96	12.49	14.23	16.18	18.35	20.78	23.46	26.38	29.56	32.40	35.53	38.96	42.65	46.54	50.75	55.28	60.07	65.55	71.49	81.76	82
58	3.73	5.83	7.12	7.98	9.04	10.28	11.72	13.40	15.28	17.42	19.77	22.41	25.35	28.59	32.12	35.23	38.68	42.40	46.39	50.67	55.07	59.90	65.04	70.90	77.28	89.25	83
59	3.95	6.09	7.57	8.50	9.62	11.00	12.56	14.39	16.45	18.81	21.41	24.31	27.53	31.07	34.95	38.40	42.16	46.24	50.59	54.87	59.70	64.87	70.42	76.67	83.53	97.30	84
60	4.11	6.34	7.99	8.98	10.23	11.74	13.49	15.50	17.78	20.37	23.24	26.43	29.98	33.86	38.14	41.95	46.09	50.51	54.66	59.49	64.63	70.17	76.01	82.59	89.73	105.41	85
61	4.25	6.61	8.38	9.47	10.84	12.50	14.43	16.66	19.23	22.10	25.29	28.83	32.72	37.03	41.72	45.92	50.43	54.47	59.29	64.40	69.92	75.73	82.38	88.87	97.63	112.17	86
62	4.49	6.86	8.77	9.92	11.41	13.25	15.40	17.89	20.75	23.97	27.53	31.46	35.82	40.58	45.77	50.37	54.29	59.08	64.18	69.68	75.46	82.18	88.59	97.01	104.16	122.89	87
63	4.88	7.13	9.11	10.35	11.96	13.97	16.37	19.17	22.37	26.01	30.00	34.41	39.26	44.54	50.27	54.10	58.88	63.99	69.46	75.18	81.97	88.24	96.43	103.44	111.41	133.59	88
64	5.31	8.66	9.48	10.77	12.51	14.72	17.39	20.52	24.12	28.19	32.67	37.62	43.02	48.91	53.90	58.67	63.76	69.21	74.89	81.75	87.88	95.78	102.79	110.60	119.00	144.35	89
65	5.82	9.05	9.85	11.19	13.08	15.51	18.47	21.97	26.00	30.60	35.61	41.14	47.16	53.70	58.46	63.52	68.95	74.60	81.54	87.58	95.13	102.06	109.79	118.67	127.46	153.05	90
66	6.03	9.50	10.27	11.66	13.69	16.32	19.56	23.40	27.85	32.86	38.40	44.47	51.08	58.24	63.29	68.74	74.32	81.33	87.23	94.48	101.42	108.93	118.03	126.73	136.03	154.94	91
67	6.17	9.97	10.72	12.21	14.40	17.28	20.83	25.03	29.88	35.36	41.44	48.08	55.32	63.10	68.49	74.05	81.14	86.90	93.93	100.74	108.18	117.21	126.01	135.23	145.13	162.66	92
68	6.76	10.48	11.29	12.90	15.28	18.42	22.30	26.90	32.19	38.14	44.75	52.01	59.88	68.28	73.83	80.33	86.58	93.33	100.14	107.45	116.41	125.12	134.35	144.28	155.26	175.10	93
69	7.39	11.03	11.94	13.72	16.35	19.79	24.02	29.01	34.74	41.18	48.38	56.20	64.72	73.56	79.34	85.62	92.34	99.48	106.71	115.43	124.14	133.38	143.30	154.54	165.80	190.97	94
70	8.06	11.62	12.69	14.69	17.61	21.39	26.02	31.44	37.65	44.57	52.30	60.77	69.84	78.30	84.48	91.16	98.33	105.97	114.20	122.98	132.59	142.86	153.79	165.07	176.93	214.97	95
71	8.87	12.29	13.58	15.85	19.12	23.27	28.32	34.18	40.83	48.22	56.52	65.58	75.31	83.27	89.83	96.94	104.60	112.70	121.50	130.86	141.49	152.99	164.27	176.12	191.24	236.91	96
72	12.18	13.00	14.58	17.20	20.84	25.42	30.91	37.26	44.35	52.18	61.07	70.67	80.94	88.41	92.71	102.99	111.09	119.82	129.11	139.02	150.75	163.47	175.46	189.61	206.54	258.95	97
73	12.89	13.83	15.75	18.78	22.84	27.88	33.82	40.58	48.15	56.40	65.85	76.01	86.78	92.29	95.70	109.22	117.86	127.05	136.97	147.53	160.59	174.68	188.03	203.81	225.31	260.01	98
74	13.66	14.83	17.17	20.63	25.15	30.66	37.05	44.28	52.27	60.91	70.86	81.58	91.92	94.76	107.04	115.74	124.82	134.63	145.20	156.46	170.90	186.70	201.44	222.86	243.46	270.77	99
75	14.48	16.07	18.86	22.78	27.77	33.72	40.56	48.24	56.59	65.61	76.09	87.29	93.83	104.86	109.12	123.65	133.78	144.49	155.93	170.13	181.77	199.34	218.65	239.91	263.29	289.27	100
76	15.72	17.80	21.14	25.65	31.23	37.85	45.37	53.69	62.77	72.53	83.75	92.96	102.92	108.72	122.52	132.87	143.85	155.49	169.65	181.38	198.38	217.41	238.35	261.38	286.71	309.03	101
77	17.39	20.00	23.90	29.03	35.27	42.52	50.71	59.75	69.58	80.04	92.14	100.92	108.32	121.39	132.07	143.22	155.06	169.18	181.18	197.80	216.58	237.22	260.14	285.12	307.14	330.78	102
78	19.59	22.76	27.23	32.95	39.85	47.80	56.66	66.44	76.97	88.26	99.02	108.00	120.27	131.17	142.59	154.63	168.57	180.97	197.40	215.75	236.52	259.14	283.77	305.79	329.31	354.11	103
79	20.42	26.16	31.25	37.57	45.10	53.70	63.27	73.79	85.10	97.12	107.63	119.14	130.38	141.97	154.21	168.10	180.62	197.01	215.12	235.42	258.38	282.94	304.98	328.12	353.14	379.41	104
80	21.60	30.35	35.96	42.89	51.02	60.35	70.58	81.78	93.83	106.64	118.04	129.59	141.46	153.66	167.64	180.42	196.44	214.29	234.30	256.72	282.39	304.17	327.53	352.81	379.41	411.32	105
81	24.00	35.36	41.51	48.99	57.74	67.67	78.59	90.53	103.35	116.96	128.76	140.82	153.23	167.02	180.05	196.02	213.46	233.17	255.03	280.08	303.90	327.24	352.49	379.41	411.32	444.02	106
82	26.83	41.26	47.89	55.91	65.25	75.76	87.34	99.99	113.48	127.89	140.15	152.79	166.54	179.83	195.42	212.79	231.80	253.30	277.67	300.94	326.65	352.17	379.41	411.32	444.02	477.53	107
83	29.65	46.76	55.19	63.69	73.53	84.69	96.83	110.10	124.42	139.62	152.32	166.07	179.62	195.01	211.95	230.65	251.81	276.30	299.32	324.28	351.84	379.41	411.32	444.02	477.53	511.24	108
84	34.11	54.47	63.42	72.32	82.69	94.36	107.09	121.03	135.96	151.95	165.45	179.28	194.63	211.34	229.58	251.33	276.27	299.32	323.69	350.55	379.41	411.32	444.02	477.53	511.24	546.35	109
85	40.64	63.15	71.14	81.87	92.64	104.81	118.11	132.57	148.33	164.96	179.04	194.11	210.55	228.74	251.33	276.27	299.32	323.69	350.55	379.41	411.32	444.02	477.53	511.24	546.35	582.26	110
86	52.43	69.94	81.06	92.27	103.43	117.64	129.88	144.95	161.29	178.86	193.65	209.84	228.74	251.33	276.27	299.32	323.69	350.55	379.41	411.32	444.02	477.53	511.24	546.35	582.26	616.78	111
87	57.47	80.26	91.89	103.25	117.26	129.43	142.25	157.90	174.91	193.26	209.16	226.40	247.64	275.20	299.32	323.69	350.55	379.41	411.32	443.59	477.07	511.24	546.35	582.26	616.78	650.25	112
88	71.66	91.57	103.02	116.81	128.99	141.85	155.28	171.45	189.09	208.19	225.05	243.50	267.17	292.62	317.96	344.97	372.93	403.19	435.08	468.64	503.85	540.71	579.23	616.78	650.25	680.72	113
89	87.95	102.87	116.39	128.60	141.52	154.93	169.09	185.76	203.89	223.72	241.59	261.57	284.92	310.06	336.38	364.05	394.08	425.83	459.33	494.58	531.56	570.27	610.73	650.25	680.72	723.69	114
90	102.67	115.89	128.22	141.09	154.60	168.71	183.42	200.59	219.31	239.73	258.91	278.44	307.66	327.68	354.89	384.54	416.00	449.30	484.44	521.40	560.20	600.82	643.28	680.72	723.69	763.66	115
91	115.50	127.88	140.80	154.26	168.30	182.96	199.84	215.83	235.14	256.53	275.76	299.93	322.03	345.68	374.77	405.77	438.72	473.59	510.39	549.12	589.77	632.35	676.86	723.29	763.66	805.12	

2001 Valuation Basic Table -- Ultimate Only -- 1000qx

Age	Male			Female			Age	Male			Female		
	composit	onsmok	Smoker	composit	onsmok	Smoker		composit	onsmok	Smoker	composit	onsmok	Smoker
0	0.90			0.41			60	8.68	7.76	14.92	7.00	6.41	12.76
1	0.49			0.28			61	9.67	8.67	16.46	7.60	6.97	13.78
2	0.32			0.19			62	10.88	9.80	18.34	8.24	7.58	14.94
3	0.20			0.13			63	12.24	11.07	20.43	8.91	8.21	16.09
4	0.14			0.12			64	13.66	12.40	22.56	9.64	8.90	17.30
5	0.14			0.12			65	15.15	13.80	24.65	10.44	9.66	18.62
6	0.15			0.12			66	16.63	15.21	26.65	11.31	10.50	20.03
7	0.15			0.14			67	18.11	16.63	28.57	12.27	11.42	21.61
8	0.15			0.14			68	19.71	18.16	30.59	13.33	12.45	23.35
9	0.16			0.14			69	21.33	19.73	32.57	14.49	13.58	25.24
10	0.16			0.15			70	23.27	21.65	34.99	15.80	14.84	27.35
11	0.20			0.16			71	25.44	23.80	37.64	17.31	16.29	29.77
12	0.26			0.20			72	28.38	26.68	41.30	18.97	17.91	32.44
13	0.31			0.23			73	31.43	29.70	44.96	20.79	19.67	35.32
14	0.39			0.26			74	34.61	32.86	48.63	22.79	21.60	38.47
15	0.53			0.28			75	38.14	36.32	52.92	24.97	23.75	41.62
16	0.66	0.66	0.70	0.31	0.31	0.33	76	41.96	40.08	57.47	27.36	26.10	45.06
17	0.78	0.77	0.88	0.33	0.33	0.37	77	46.42	44.47	62.74	29.98	28.69	48.75
18	0.85	0.83	1.01	0.35	0.34	0.41	78	51.64	49.61	68.86	32.86	31.55	52.71
19	0.89	0.85	1.11	0.37	0.36	0.45	79	57.67	55.56	75.84	36.01	34.64	57.00
20	0.90	0.85	1.17	0.38	0.36	0.48	80	64.23	62.05	83.27	39.46	38.08	61.60
21	0.90	0.85	1.22	0.39	0.37	0.51	81	71.70	69.45	91.60	44.32	42.85	68.21
22	0.91	0.85	1.28	0.40	0.38	0.54	82	79.41	77.12	99.95	49.73	48.24	75.39
23	0.92	0.85	1.34	0.40	0.38	0.56	83	87.67	85.36	108.66	55.11	53.57	82.33
24	0.93	0.85	1.41	0.41	0.39	0.60	84	96.80	94.49	118.11	61.04	59.45	89.79
25	0.95	0.86	1.49	0.42	0.39	0.64	85	107.06	104.68	129.28	67.64	66.09	97.26
26	0.99	0.89	1.57	0.44	0.41	0.68	86	118.42	115.99	141.51	73.54	72.00	103.32
27	1.03	0.93	1.66	0.47	0.44	0.73	87	130.79	128.32	154.63	82.62	81.13	113.27
28	1.02	0.91	1.66	0.49	0.45	0.77	88	143.99	141.51	168.39	92.11	90.64	123.15
29	0.99	0.88	1.64	0.52	0.48	0.83	89	157.86	155.38	182.58	102.19	100.76	133.05
30	0.97	0.86	1.62	0.53	0.49	0.86	90	172.25	169.81	196.98	111.16	109.94	140.84
31	0.95	0.84	1.61	0.57	0.52	0.94	91	185.54	183.19	209.75	115.05	114.02	141.74
32	0.94	0.83	1.61	0.60	0.55	1.00	92	199.31	197.07	222.69	123.82	122.83	148.21
33	0.95	0.84	1.65	0.64	0.58	1.08	93	213.73	211.63	235.97	137.10	136.28	159.17
34	0.97	0.85	1.71	0.69	0.63	1.17	94	228.89	226.96	249.66	154.08	153.46	173.34
35	0.99	0.87	1.75	0.76	0.69	1.30	95	244.81	242.98	264.85	175.58	174.88	195.42
36	1.04	0.91	1.85	0.81	0.73	1.40	96	259.01	257.32	277.90	195.67	195.08	215.44
37	1.09	0.95	1.95	0.88	0.80	1.53	97	274.03	272.49	291.56	216.53	215.88	235.59
38	1.17	1.02	2.10	0.92	0.83	1.60	98	289.92	288.55	305.86	218.32	217.88	234.92
39	1.25	1.09	2.25	0.97	0.87	1.70	99	306.74	305.55	320.83	228.83	228.37	243.25
40	1.34	1.16	2.43	1.02	0.92	1.80	100	324.53	323.54	336.48	246.10	245.85	258.65
41	1.46	1.26	2.66	1.08	0.97	1.92	101	343.35	342.58	352.85	269.69	269.42	279.94
42	1.61	1.39	2.94	1.16	1.04	2.07	102	363.27	362.74	369.99	295.54	295.54	303.22
43	1.78	1.53	3.27	1.25	1.12	2.24	103	384.34	384.06	387.90	323.87	323.87	328.08
44	1.99	1.71	3.67	1.36	1.21	2.45	104	406.63	406.63	406.63	354.91	354.91	354.91
45	2.22	1.91	4.09	1.49	1.33	2.69	105	430.21	430.21	430.21	388.35	388.35	388.35
46	2.44	2.10	4.48	1.64	1.47	2.96	106	455.16	455.16	455.16	422.59	422.59	422.59
47	2.68	2.31	4.91	1.83	1.64	3.30	107	481.56	481.56	481.56	457.63	457.63	457.63
48	2.81	2.42	5.13	2.04	1.83	3.74	108	509.49	509.49	509.49	492.87	492.87	492.87
49	2.96	2.55	5.39	2.28	2.04	4.23	109	539.05	539.05	539.05	529.51	529.51	529.51
50	3.17	2.74	5.77	2.55	2.29	4.77	110	570.31	570.31	570.31	566.95	566.95	566.95
51	3.43	2.97	6.24	2.85	2.56	5.36	111	603.39	603.39	603.39	603.00	603.00	603.00
52	3.79	3.29	6.88	3.19	2.88	6.00	112	638.38	638.38	638.38	638.00	638.00	638.00
53	4.20	3.65	7.62	3.56	3.22	6.69	113	675.41	675.41	675.41	670.00	670.00	670.00
54	4.72	4.11	8.55	3.95	3.58	7.43	114	714.58	714.58	714.58	714.50	714.50	714.50
55	5.34	4.68	9.60	4.37	3.96	8.22	115	756.03	756.03	756.03	756.00	756.00	756.00
56	5.99	5.26	10.67	4.85	4.41	9.06	116	799.88	799.88	799.88	799.00	799.00	799.00
57	6.68	5.89	11.80	5.36	4.88	9.95	117	846.27	846.27	846.27	846.00	846.00	846.00
58	7.24	6.41	12.67	5.91	5.39	10.81	118	895.36	895.36	895.36	889.48	889.48	889.48
59	7.89	7.02	13.68	6.44	5.89	11.77	119	947.29	947.29	947.29	933.63	933.63	933.63
120	####	####	####	####	####	####	120	####	####	####	####	####	####

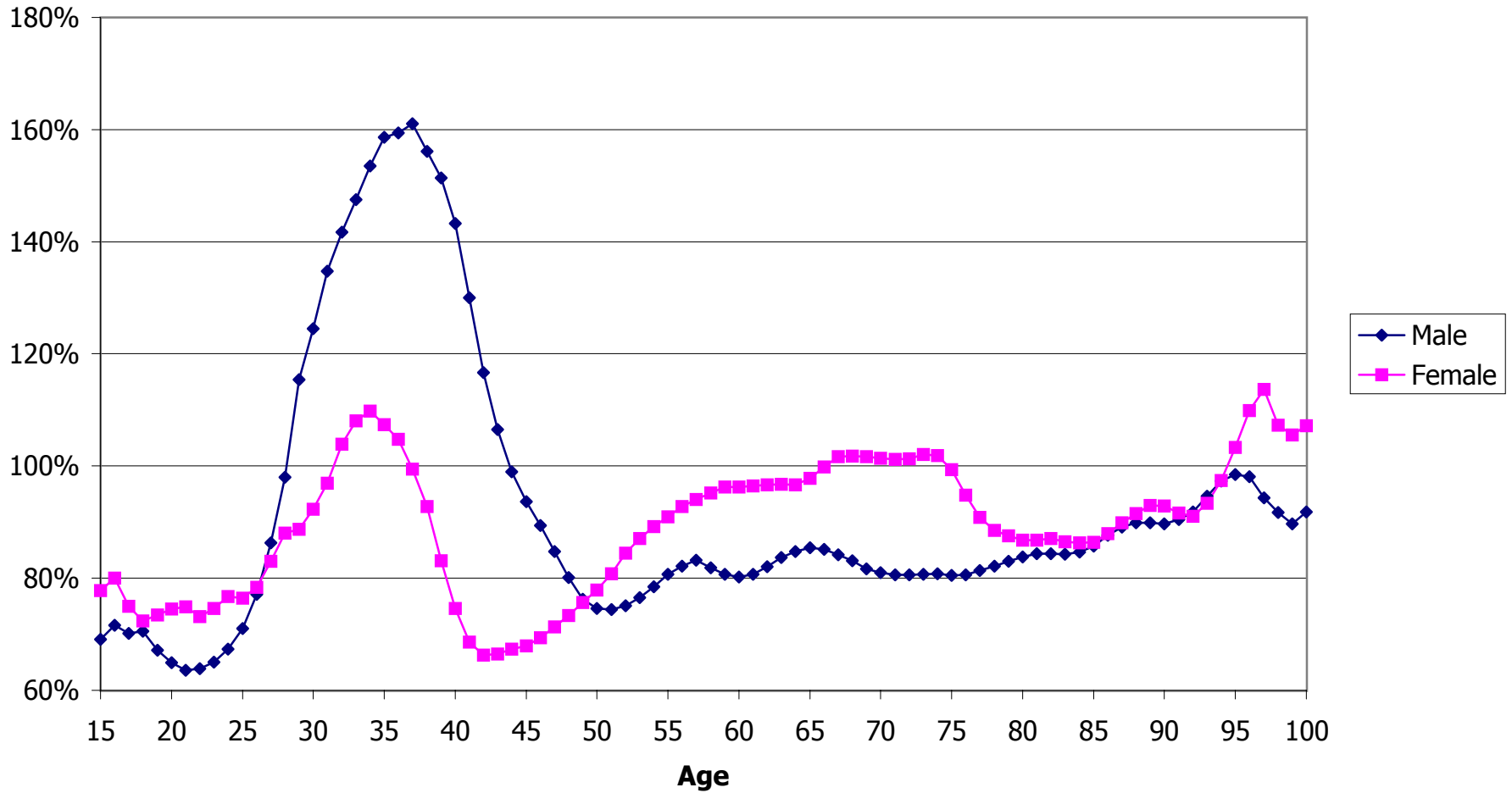
Proposed 2001 CSO Table -- Ultimate Only -- 1000qx

Age	Male			Female			Age	Male			Female		
	composit	onsmok	Smoker	composit	onsmok	Smoker		composit	onsmok	Smoker	composit	onsmok	Smoker
0	0.97			0.48			60	9.86	8.92	16.29	8.01	7.40	13.97
1	0.56			0.35			61	10.94	9.92	17.94	8.68	8.03	15.08
2	0.39			0.26			62	12.25	11.14	19.93	9.39	8.72	16.33
3	0.27			0.20			63	13.71	12.51	22.14	10.14	9.43	17.58
4	0.21			0.19			64	15.24	13.95	24.40	10.96	10.20	18.90
5	0.21			0.18			65	16.85	15.47	26.63	11.85	11.05	20.34
6	0.22			0.18			66	18.47	17.01	28.78	12.82	11.99	21.87
7	0.22			0.21			67	20.09	18.57	30.87	13.89	13.02	23.59
8	0.22			0.21			68	21.85	20.25	33.07	15.07	14.17	25.48
9	0.23			0.21			69	23.64	21.99	35.25	16.36	15.43	27.53
10	0.23			0.22			70	25.77	24.10	37.89	17.81	16.82	29.82
11	0.27			0.23			71	28.15	26.46	40.78	19.47	18.42	32.43
12	0.33			0.27			72	31.32	29.56	44.71	21.30	20.21	35.31
13	0.39			0.30			73	34.62	32.83	48.66	23.30	22.15	38.41
14	0.47			0.33			74	38.08	36.27	52.65	25.50	24.28	41.81
15	0.61			0.35			75	41.91	40.03	57.29	27.90	26.64	45.23
16	0.74	0.74	0.79	0.39	0.39	0.41	76	46.08	44.13	62.23	30.53	29.23	48.96
17	0.87	0.85	0.97	0.41	0.41	0.46	77	50.92	48.89	67.94	33.41	32.08	52.97
18	0.94	0.92	1.11	0.43	0.42	0.50	78	56.56	54.45	74.54	36.58	35.23	57.29
19	0.98	0.94	1.21	0.46	0.45	0.54	79	63.06	60.87	82.05	40.05	38.63	61.96
20	1.00	0.95	1.27	0.47	0.45	0.58	80	70.14	67.87	90.07	43.86	42.43	66.99
21	1.00	0.95	1.33	0.48	0.46	0.61	81	78.19	75.84	99.05	49.11	47.59	74.07
22	1.02	0.95	1.40	0.50	0.48	0.65	82	86.54	84.14	108.11	54.95	53.41	81.76
23	1.03	0.96	1.46	0.50	0.48	0.67	83	95.51	93.09	117.61	60.81	59.21	89.25
24	1.05	0.97	1.54	0.52	0.50	0.72	84	105.43	103.00	127.94	67.27	65.62	97.30
25	1.07	0.98	1.63	0.54	0.50	0.77	85	116.57	114.07	140.09	74.45	72.84	105.41
26	1.12	1.02	1.71	0.56	0.53	0.81	86	128.91	126.34	153.39	80.99	79.39	112.17
27	1.17	1.07	1.81	0.60	0.57	0.87	87	142.35	139.74	167.69	90.79	89.25	122.89
28	1.17	1.05	1.82	0.63	0.58	0.92	88	156.73	154.10	182.72	101.07	99.55	133.59
29	1.15	1.03	1.81	0.66	0.62	0.99	89	171.88	169.25	198.27	112.02	110.53	144.35
30	1.14	1.02	1.80	0.68	0.64	1.03	90	187.66	185.06	214.13	121.92	120.65	153.05
31	1.13	1.01	1.80	0.73	0.68	1.12	91	202.44	199.93	228.43	126.85	125.77	154.94
32	1.13	1.01	1.82	0.77	0.72	1.19	92	217.83	215.43	243.02	136.88	135.84	162.66
33	1.15	1.04	1.87	0.82	0.76	1.28	93	234.04	231.78	258.10	151.64	150.78	175.10
34	1.18	1.06	1.94	0.88	0.82	1.39	94	251.14	249.05	273.74	170.31	169.64	190.97
35	1.21	1.09	2.00	0.97	0.89	1.53	95	269.17	267.19	291.05	193.66	192.92	214.97
36	1.28	1.15	2.11	1.03	0.95	1.65	96	285.64	283.79	306.33	215.66	215.03	236.91
37	1.34	1.20	2.23	1.11	1.03	1.79	97	303.18	301.49	322.44	238.48	237.79	258.95
38	1.44	1.29	2.40	1.17	1.07	1.88	98	321.88	320.38	339.45	242.16	241.69	260.01
39	1.54	1.37	2.57	1.23	1.13	2.00	99	341.85	340.54	357.42	255.23	254.74	270.77
40	1.65	1.46	2.77	1.30	1.20	2.12	100	363.19	362.10	376.40	275.73	275.46	289.27
41	1.79	1.58	3.03	1.38	1.27	2.26	101	380.08	379.21	390.77	297.84	297.55	309.03
42	1.96	1.73	3.33	1.48	1.35	2.43	102	398.06	397.44	405.92	322.21	322.19	330.78
43	2.15	1.90	3.69	1.59	1.45	2.63	103	417.20	416.84	421.83	349.06	349.04	354.11
44	2.39	2.10	4.12	1.72	1.57	2.86	104	437.56	437.48	438.57	378.61	378.60	379.41
45	2.65	2.33	4.57	1.87	1.71	3.13	105	459.21	459.13	460.15	410.57	410.56	411.32
46	2.90	2.55	4.99	2.05	1.87	3.43	106	482.22	482.15	483.10	443.33	443.32	444.02
47	3.17	2.79	5.46	2.27	2.07	3.81	107	506.69	506.62	507.51	476.89	476.88	477.53
48	3.33	2.93	5.72	2.50	2.29	4.28	108	532.69	532.63	533.44	510.65	510.64	511.24
49	3.52	3.09	6.02	2.78	2.53	4.81	109	560.31	560.26	561.01	545.81	545.80	546.35
50	3.76	3.32	6.45	3.08	2.81	5.39	110	589.64	589.59	590.27	581.77	581.76	582.26
51	4.06	3.59	6.96	3.41	3.12	6.02	111	620.79	620.74	621.35	616.33	616.32	616.78
52	4.47	3.96	7.66	3.79	3.47	6.71	112	653.84	653.80	654.35	649.85	649.84	650.25
53	4.93	4.36	8.45	4.20	3.85	7.44	113	688.94	688.91	689.38	680.37	680.36	680.72
54	5.50	4.87	9.44	4.63	4.25	8.24	114	726.18	726.15	726.56	723.39	723.38	723.69
55	6.17	5.50	10.56	5.10	4.68	9.08	115	765.70	765.67	766.01	763.41	763.40	763.66
56	6.88	6.14	11.70	5.63	5.18	9.98	116	807.61	807.59	807.86	804.93	804.92	805.12
57	7.64	6.83	12.91	6.19	5.70	10.94	117	852.07	852.05	852.26	850.44	850.44	850.59
58	8.27	7.42	13.86	6.80	6.26	11.87	118	899.23	899.22	899.35	892.44	892.44	892.54
59	8.99	8.10	14.96	7.39	6.82	12.90	119	949.22	949.22	949.29	935.11	935.11	935.16
120	####	####	####	####	####	####	120	####	####	####	####	####	####

Appendix B
Mortality Comparisons

1975-80 v. 1990-95 Basic Table -- Composite -- Ultimate -- 1000qx																	
(1)	(2) (3) (4) (5)				(6) (7) (8) (9)				(1)	(2) (3) (4) (5)				(6) (7) (8) (9)			
	Male				Female					Male				Female			
Age	1975-80	1990-95	(3) - (2)	(3) / (2)	1975-80	1990-95	(7) - (6)	(7) / (6)	Age	1975-80	1990-95	(3) - (2)	(3) / (2)	1975-80	1990-95	(7) - (6)	(7) / (6)
0		0.90				0.50			60	11.89	9.53	-2.36	80%	7.37	7.09	-0.28	96%
1		0.49				0.34			61	13.17	10.62	-2.55	81%	8.00	7.71	-0.29	96%
2		0.32				0.23			62	14.57	11.96	-2.61	82%	8.67	8.38	-0.29	97%
3		0.22				0.16			63	16.07	13.45	-2.62	84%	9.38	9.07	-0.31	97%
4		0.14				0.12			64	17.71	15.01	-2.70	85%	10.15	9.81	-0.34	97%
5		0.14				0.11			65	19.50	16.65	-2.85	85%	10.99	10.74	-0.25	98%
6		0.15				0.13			66	21.47	18.27	-3.20	85%	11.91	11.90	-0.01	100%
7		0.15				0.15			67	23.65	19.90	-3.75	84%	12.92	13.14	0.22	102%
8		0.16				0.15			68	26.05	21.66	-4.39	83%	14.03	14.27	0.24	102%
9		0.16				0.16			69	28.69	23.44	-5.25	82%	15.25	15.50	0.25	102%
10		0.16				0.16			70	31.57	25.57	-6.00	81%	16.63	16.86	0.23	101%
11		0.20				0.17			71	34.68	27.95	-6.73	81%	18.21	18.42	0.21	101%
12		0.26				0.21			72	38.00	30.63	-7.37	81%	20.04	20.31	0.27	101%
13		0.31				0.24			73	41.60	33.57	-8.03	81%	22.17	22.62	0.45	102%
14		0.39				0.27			74	45.54	36.81	-8.73	81%	24.65	25.11	0.46	102%
15	0.68	0.47	-0.21	69%	0.36	0.28	-0.08	78%	75	49.90	40.15	-9.75	80%	27.53	27.34	-0.19	99%
16	1.01	0.72	-0.29	72%	0.40	0.32	-0.08	80%	76	54.71	44.09	-10.62	81%	30.86	29.24	-1.62	95%
17	1.14	0.80	-0.34	70%	0.44	0.33	-0.11	75%	77	60.03	48.83	-11.20	81%	34.69	31.52	-3.17	91%
18	1.22	0.86	-0.36	70%	0.47	0.34	-0.13	72%	78	65.85	54.07	-11.78	82%	39.07	34.59	-4.48	89%
19	1.31	0.88	-0.43	67%	0.49	0.36	-0.13	73%	79	72.18	59.95	-12.23	83%	44.00	38.51	-5.49	88%
20	1.37	0.89	-0.48	65%	0.51	0.38	-0.13	75%	80	79.02	66.19	-12.83	84%	49.48	42.93	-6.55	87%
21	1.40	0.89	-0.51	64%	0.52	0.39	-0.13	75%	81	86.36	72.84	-13.52	84%	55.51	48.18	-7.33	87%
22	1.41	0.90	-0.51	64%	0.53	0.39	-0.14	73%	82	94.12	79.43	-14.69	84%	62.09	54.05	-8.04	87%
23	1.40	0.91	-0.49	65%	0.53	0.40	-0.13	75%	83	102.35	86.24	-16.11	84%	69.22	59.90	-9.32	87%
24	1.38	0.93	-0.45	67%	0.53	0.41	-0.12	77%	84	111.41	94.36	-17.05	85%	76.90	66.35	-10.55	86%
25	1.34	0.95	-0.39	71%	0.53	0.41	-0.12	76%	85	121.31	104.01	-17.30	86%	85.13	73.52	-11.61	86%
26	1.29	1.00	-0.29	77%	0.53	0.42	-0.11	78%	86	132.05	115.70	-16.35	88%	93.91	82.63	-11.28	88%
27	1.24	1.07	-0.17	86%	0.53	0.44	-0.09	83%	87	143.63	127.97	-15.66	89%	103.24	92.83	-10.41	90%
28	1.20	1.18	-0.02	98%	0.53	0.47	-0.06	88%	88	156.05	140.20	-15.85	90%	113.12	103.50	-9.62	91%
29	1.17	1.35	0.18	115%	0.54	0.48	-0.06	89%	89	169.12	151.99	-17.13	90%	123.55	114.82	-8.73	93%
30	1.14	1.42	0.28	124%	0.55	0.51	-0.04	92%	90	182.61	163.71	-18.90	90%	134.53	124.90	-9.63	93%
31	1.12	1.51	0.39	135%	0.58	0.56	-0.02	97%	91	196.52	177.82	-18.70	90%	146.06	133.78	-12.28	92%
32	1.11	1.57	0.46	142%	0.61	0.63	0.02	104%	92	210.85	193.53	-17.32	92%	158.14	143.97	-14.17	91%
33	1.12	1.65	0.53	148%	0.65	0.70	0.05	108%	93	225.60	213.45	-12.15	95%	170.77	159.42	-11.35	93%
34	1.14	1.75	0.61	154%	0.70	0.77	0.07	110%	94	240.77	234.23	-6.54	97%	183.95	179.17	-4.78	97%
35	1.17	1.86	0.69	159%	0.77	0.83	0.06	107%	95	256.36	252.53	-3.83	99%	197.68	204.16	6.48	103%
36	1.22	1.94	0.72	159%	0.84	0.88	0.04	105%	96	272.37	267.09	-5.28	98%	211.96	232.94	20.98	110%
37	1.28	2.06	0.78	161%	0.93	0.93	0.00	99%	97	288.80	272.42	-16.38	94%	226.79	257.77	30.98	114%
38	1.36	2.12	0.76	156%	1.03	0.96	-0.07	93%	98	305.65	280.31	-25.34	92%	242.17	259.91	17.74	107%
39	1.45	2.20	0.75	151%	1.15	0.96	-0.19	83%	99	322.92	289.67	-33.25	90%	258.10	272.42	14.32	106%
40	1.56	2.23	0.67	143%	1.29	0.96	-0.33	75%	100	340.61	312.84	-27.77	92%	274.58	294.21	19.63	107%
41	1.70	2.21	0.51	130%	1.45	1.00	-0.45	69%	101		339.44				319.22		
42	1.87	2.18	0.31	117%	1.62	1.07	-0.55	66%	102		369.98				347.95		
43	2.07	2.20	0.13	106%	1.79	1.19	-0.60	66%	103		405.13				381.01		
44	2.31	2.29	-0.02	99%	1.96	1.32	-0.64	67%	104		445.65				419.11		
45	2.58	2.42	-0.16	94%	2.14	1.45	-0.69	68%	105		494.67				463.11		
46	2.89	2.58	-0.31	89%	2.33	1.62	-0.71	69%	106		554.03				514.06		
47	3.24	2.75	-0.49	85%	2.52	1.80	-0.72	71%	107		626.05				575.74		
48	3.61	2.89	-0.72	80%	2.72	2.00	-0.72	73%	108		707.44				650.59		
49	4.02	3.06	-0.96	76%	2.93	2.22	-0.71	76%	109		799.40				741.67		
50	4.45	3.32	-1.13	75%	3.17	2.47	-0.70	78%	110		863.36				852.92		
51	4.92	3.66	-1.26	74%	3.43	2.77	-0.66	81%	111		906.52				912.15		
52	5.44	4.08	-1.36	75%	3.71	3.13	-0.58	84%	112		933.72				939.52		
53	6.00	4.59	-1.41	77%	4.04	3.52	-0.52	87%	113		952.39				958.31		
54	6.61	5.18	-1.43	78%	4.40	3.93	-0.47	89%	114		966.68				967.89		
55	7.27	5.87	-1.40	81%	4.80	4.37	-0.43	91%	115		976.35				972.73		
56	8.01	6.58	-1.43	82%	5.23	4.85	-0.38	93%	116		981.23				977.60		
57	8.82	7.34	-1.48	83%	5.70	5.36	-0.34	94%	117		986.14				982.48		
58	9.73	7.96	-1.77	82%	6.22	5.92	-0.30	95%	118		991.07				987.40		
59	10.75	8.67	-2.08	81%	6.78	6.52	-0.26	96%	119		996.02				992.33		
									120		999.99				999.99		

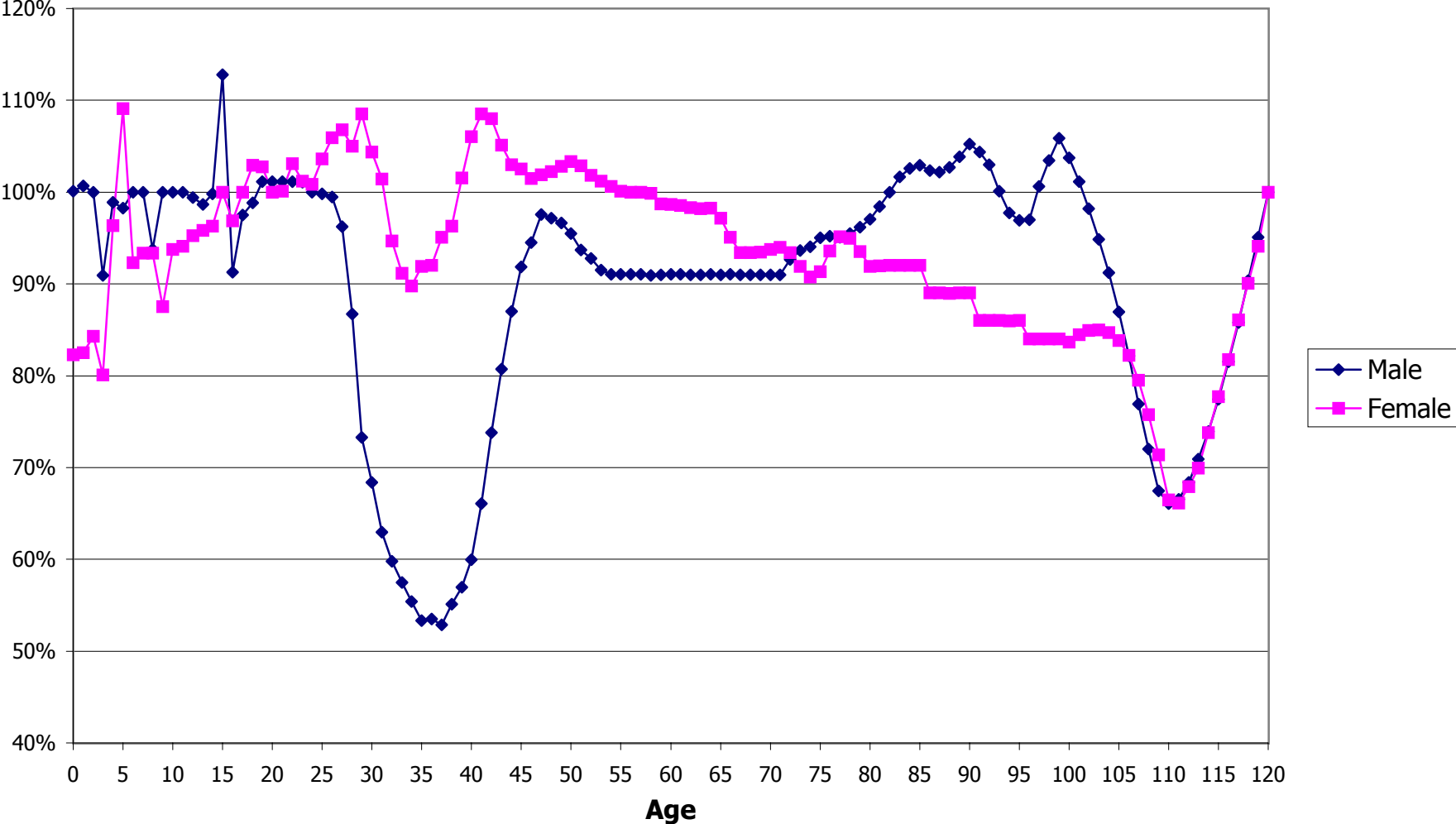
**1990-95 Basic Table as a % of 1975-80 Basic Table
Composite, Ultimate**



1990-95 Basic Table v. 2001 Valuation Basic Table -- Composite -- Ultimate -- 1000qx

(1) Age	Male				Female				(1) Age	Male				Female			
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1990-95	VBT	(3) - (2)	(3) / (2)	1990-95	VBT	(7) - (6)	(7) / (6)		1990-95	VBT	(3) - (2)	(3) / (2)	1990-95	VBT	(7) - (6)	(7) / (6)
0	0.90	0.90	0.00	100%	0.50	0.41	-0.09	82%	60	9.53	8.68	-0.85	91%	7.09	7.00	-0.09	99%
1	0.49	0.49	0.00	101%	0.34	0.28	-0.06	83%	61	10.62	9.67	-0.95	91%	7.71	7.60	-0.11	99%
2	0.32	0.32	0.00	100%	0.23	0.19	-0.04	84%	62	11.96	10.88	-1.08	91%	8.38	8.24	-0.14	98%
3	0.22	0.20	-0.02	91%	0.16	0.13	-0.03	80%	63	13.45	12.24	-1.21	91%	9.07	8.91	-0.16	98%
4	0.14	0.14	0.00	99%	0.12	0.12	0.00	96%	64	15.01	13.66	-1.35	91%	9.81	9.64	-0.17	98%
5	0.14	0.14	0.00	98%	0.11	0.12	0.01	109%	65	16.65	15.15	-1.50	91%	10.74	10.44	-0.30	97%
6	0.15	0.15	0.00	100%	0.13	0.12	-0.01	92%	66	18.27	16.63	-1.64	91%	11.90	11.31	-0.59	95%
7	0.15	0.15	0.00	100%	0.15	0.14	-0.01	93%	67	19.90	18.11	-1.79	91%	13.14	12.27	-0.87	93%
8	0.16	0.15	-0.01	94%	0.15	0.14	-0.01	93%	68	21.66	19.71	-1.95	91%	14.27	13.33	-0.94	93%
9	0.16	0.16	0.00	100%	0.16	0.14	-0.02	88%	69	23.44	21.33	-2.11	91%	15.50	14.49	-1.01	93%
10	0.16	0.16	0.00	100%	0.16	0.15	-0.01	94%	70	25.57	23.27	-2.30	91%	16.86	15.80	-1.06	94%
11	0.20	0.20	0.00	100%	0.17	0.16	-0.01	94%	71	27.95	25.44	-2.51	91%	18.42	17.31	-1.11	94%
12	0.26	0.26	0.00	99%	0.21	0.20	-0.01	95%	72	30.63	28.38	-2.25	93%	20.31	18.97	-1.34	93%
13	0.31	0.31	0.00	99%	0.24	0.23	-0.01	96%	73	33.57	31.43	-2.14	94%	22.62	20.79	-1.83	92%
14	0.39	0.39	0.00	100%	0.27	0.26	-0.01	96%	74	36.81	34.61	-2.20	94%	25.11	22.79	-2.32	91%
15	0.47	0.53	0.06	113%	0.28	0.28	0.00	100%	75	40.15	38.14	-2.01	95%	27.34	24.97	-2.37	91%
16	0.72	0.66	-0.06	91%	0.32	0.31	-0.01	97%	76	44.09	41.96	-2.13	95%	29.24	27.36	-1.88	94%
17	0.80	0.78	-0.02	98%	0.33	0.33	0.00	100%	77	48.83	46.42	-2.41	95%	31.52	29.98	-1.54	95%
18	0.86	0.85	-0.01	99%	0.34	0.35	0.01	103%	78	54.07	51.64	-2.43	96%	34.59	32.86	-1.73	95%
19	0.88	0.89	0.01	101%	0.36	0.37	0.01	103%	79	59.95	57.67	-2.28	96%	38.51	36.01	-2.50	94%
20	0.89	0.90	0.01	101%	0.38	0.38	0.00	100%	80	66.19	64.23	-1.96	97%	42.93	39.46	-3.47	92%
21	0.89	0.90	0.01	101%	0.39	0.39	0.00	100%	81	72.84	71.70	-1.14	98%	48.18	44.32	-3.86	92%
22	0.90	0.91	0.01	101%	0.39	0.40	0.01	103%	82	79.43	79.41	-0.02	100%	54.05	49.73	-4.32	92%
23	0.91	0.92	0.01	101%	0.40	0.40	0.00	101%	83	86.24	87.67	1.43	102%	59.90	55.11	-4.79	92%
24	0.93	0.93	0.00	100%	0.41	0.41	0.00	101%	84	94.36	96.80	2.44	103%	66.35	61.04	-5.31	92%
25	0.95	0.95	0.00	100%	0.41	0.42	0.01	104%	85	104.01	107.06	3.05	103%	73.52	67.64	-5.88	92%
26	1.00	0.99	-0.01	99%	0.42	0.44	0.02	106%	86	115.70	118.42	2.72	102%	82.63	73.54	-9.09	89%
27	1.07	1.03	-0.04	96%	0.44	0.47	0.03	107%	87	127.97	130.79	2.82	102%	92.83	82.62	-10.21	89%
28	1.18	1.02	-0.16	87%	0.47	0.49	0.02	105%	88	140.20	143.99	3.79	103%	103.50	92.11	-11.39	89%
29	1.35	0.99	-0.36	73%	0.48	0.52	0.04	108%	89	151.99	157.86	5.87	104%	114.82	102.19	-12.63	89%
30	1.42	0.97	-0.45	68%	0.51	0.53	0.02	104%	90	163.71	172.25	8.54	105%	124.90	111.16	-13.74	89%
31	1.51	0.95	-0.56	63%	0.56	0.57	0.01	101%	91	177.82	185.54	7.72	104%	133.78	115.05	-18.73	86%
32	1.57	0.94	-0.63	60%	0.63	0.60	-0.03	95%	92	193.53	199.31	5.78	103%	143.97	123.82	-20.15	86%
33	1.65	0.95	-0.70	57%	0.70	0.64	-0.06	91%	93	213.45	213.73	0.28	100%	159.42	137.10	-22.32	86%
34	1.75	0.97	-0.78	55%	0.77	0.69	-0.08	90%	94	234.23	228.89	-5.34	98%	179.17	154.08	-25.09	86%
35	1.86	0.99	-0.87	53%	0.83	0.76	-0.07	92%	95	252.53	244.81	-7.72	97%	204.16	175.58	-28.58	86%
36	1.94	1.04	-0.90	53%	0.88	0.81	-0.07	92%	96	267.09	259.01	-8.08	97%	232.94	195.67	-37.27	84%
37	2.06	1.09	-0.97	53%	0.93	0.88	-0.05	95%	97	272.42	274.03	1.61	101%	257.77	216.53	-41.24	84%
38	2.12	1.17	-0.95	55%	0.96	0.92	-0.04	96%	98	280.31	289.92	9.61	103%	259.91	218.32	-41.59	84%
39	2.20	1.25	-0.95	57%	0.96	0.97	0.01	102%	99	289.67	306.74	17.07	106%	272.42	228.83	-43.59	84%
40	2.23	1.34	-0.89	60%	0.96	1.02	0.06	106%	100	312.84	324.53	11.69	104%	294.21	246.10	-48.11	84%
41	2.21	1.46	-0.75	66%	1.00	1.08	0.08	109%	101	339.44	343.35	3.91	101%	319.22	269.69	-49.53	84%
42	2.18	1.61	-0.57	74%	1.07	1.16	0.09	108%	102	369.98	363.27	-6.71	98%	347.95	295.54	-52.41	85%
43	2.20	1.78	-0.42	81%	1.19	1.25	0.06	105%	103	405.13	384.34	-20.79	95%	381.01	323.87	-57.14	85%
44	2.29	1.99	-0.30	87%	1.32	1.36	0.04	103%	104	445.65	406.63	-39.02	91%	419.11	354.91	-64.20	85%
45	2.42	2.22	-0.20	92%	1.45	1.49	0.04	103%	105	494.67	430.21	-64.46	87%	463.11	388.35	-74.76	84%
46	2.58	2.44	-0.14	94%	1.62	1.64	0.02	101%	106	554.03	455.16	-98.87	82%	514.06	422.59	-91.47	82%
47	2.75	2.68	-0.07	98%	1.80	1.83	0.03	102%	107	626.05	481.56	-144.49	77%	575.74	457.63	-118.11	79%
48	2.89	2.81	-0.08	97%	2.00	2.04	0.04	102%	108	707.44	509.49	-197.95	72%	650.59	492.87	-157.72	76%
49	3.06	2.96	-0.10	97%	2.22	2.28	0.06	103%	109	799.40	539.05	-260.35	67%	741.67	529.51	-212.16	71%
50	3.32	3.17	-0.15	95%	2.47	2.55	0.08	103%	110	863.36	570.31	-293.05	66%	852.92	566.95	-285.97	66%
51	3.66	3.43	-0.23	94%	2.77	2.85	0.08	103%	111	906.52	603.39	-303.13	67%	912.15	603.00	-309.15	66%
52	4.08	3.79	-0.29	93%	3.13	3.19	0.06	102%	112	933.72	638.38	-295.34	68%	939.52	638.00	-301.52	68%
53	4.59	4.20	-0.39	91%	3.52	3.56	0.04	101%	113	952.39	675.41	-276.98	71%	958.31	670.00	-288.31	70%
54	5.18	4.72	-0.46	91%	3.93	3.95	0.02	101%	114	966.68	714.58	-252.10	74%	967.89	714.50	-253.39	74%
55	5.87	5.34	-0.53	91%	4.37	4.37	0.00	100%	115	976.35	756.03	-220.32	77%	972.73	756.00	-216.73	78%
56	6.58	5.99	-0.59	91%	4.85	4.85	0.00	100%	116	981.23	799.88	-181.35	82%	977.60	799.00	-178.60	82%
57	7.34	6.68	-0.66	91%	5.36	5.36	0.00	100%	117	986.14	846.27	-139.87	86%	982.48	846.00	-136.48	86%
58	7.96	7.24	-0.72	91%	5.92	5.91	-0.01	100%	118	991.07	895.36	-95.71	90%	987.40	889.48	-97.92	90%
59	8.67	7.89	-0.78	91%	6.52	6.44	-0.08	99%	119	996.02	947.29	-48.73	95%	992.33	933.63	-58.70	94%
120	999.99	1000.00	0.01	100%	999.99	1000.00	0.01	100%	120	999.99	1000.00	0.01	100%	999.99	1000.00	0.01	100%

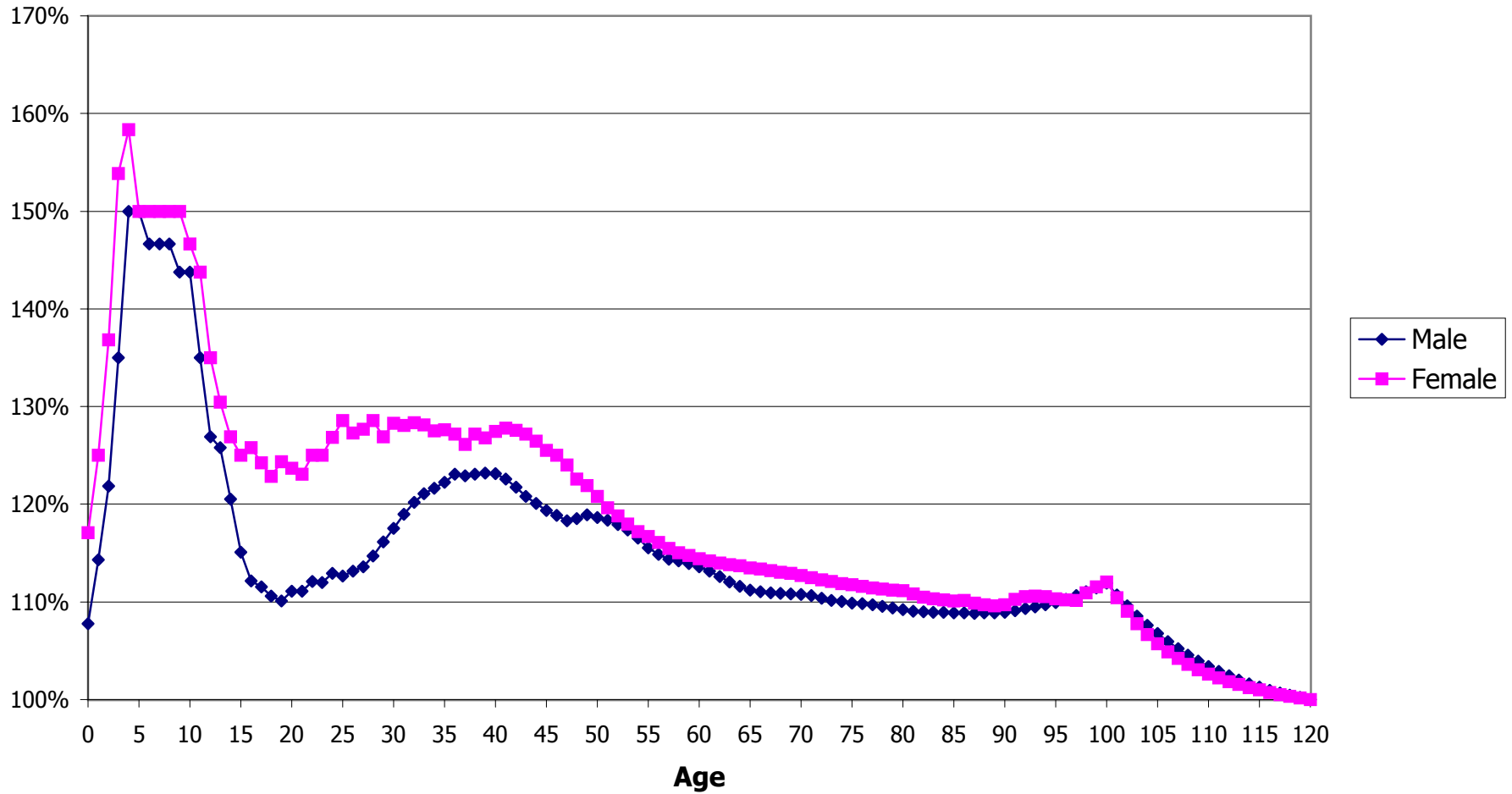
2001 Valuation Basic Table as a % of 1990-95 Basic Table Composite, Ultimate



2001 Valuation Basic Table v. Proposed 2001 CSO Table -- Composite -- Ultimate -- 1000qx

(1) Age	(2) - (5) Male				(6) - (9) Female				(1) Age	(2) - (5) Male				(6) - (9) Female			
	VBT	CSO	(3) - (2)	(3) / (2)	VBT	CSO	(7) - (6)	(7) / (6)		VBT	CSO	(3) - (2)	(3) / (2)	VBT	CSO	(7) - (6)	(7) / (6)
0	0.90	0.97	0.07	108%	0.41	0.48	0.07	117%	60	8.68	9.86	1.18	114%	7.00	8.01	1.01	114%
1	0.49	0.56	0.07	114%	0.28	0.35	0.07	125%	61	9.67	10.94	1.27	113%	7.60	8.68	1.08	114%
2	0.32	0.39	0.07	122%	0.19	0.26	0.07	137%	62	10.88	12.25	1.37	113%	8.24	9.39	1.15	114%
3	0.20	0.27	0.07	135%	0.13	0.20	0.07	154%	63	12.24	13.71	1.47	112%	8.91	10.14	1.23	114%
4	0.14	0.21	0.07	150%	0.12	0.19	0.07	158%	64	13.66	15.24	1.58	112%	9.64	10.96	1.32	114%
5	0.14	0.21	0.07	150%	0.12	0.18	0.06	150%	65	15.15	16.85	1.70	111%	10.44	11.85	1.41	114%
6	0.15	0.22	0.07	147%	0.12	0.18	0.06	150%	66	16.63	18.47	1.84	111%	11.31	12.82	1.51	113%
7	0.15	0.22	0.07	147%	0.14	0.21	0.07	150%	67	18.11	20.09	1.98	111%	12.27	13.89	1.62	113%
8	0.15	0.22	0.07	147%	0.14	0.21	0.07	150%	68	19.71	21.85	2.14	111%	13.33	15.07	1.74	113%
9	0.16	0.23	0.07	144%	0.14	0.21	0.07	150%	69	21.33	23.64	2.31	111%	14.49	16.36	1.87	113%
10	0.16	0.23	0.07	144%	0.15	0.22	0.07	147%	70	23.27	25.77	2.50	111%	15.80	17.81	2.01	113%
11	0.20	0.27	0.07	135%	0.16	0.23	0.07	144%	71	25.44	28.15	2.71	111%	17.31	19.47	2.16	112%
12	0.26	0.33	0.07	127%	0.20	0.27	0.07	135%	72	28.38	31.32	2.94	110%	18.97	21.30	2.33	112%
13	0.31	0.39	0.08	126%	0.23	0.30	0.07	130%	73	31.43	34.62	3.19	110%	20.79	23.30	2.51	112%
14	0.39	0.47	0.08	121%	0.26	0.33	0.07	127%	74	34.61	38.08	3.47	110%	22.79	25.50	2.71	112%
15	0.53	0.61	0.08	115%	0.28	0.35	0.07	125%	75	38.14	41.91	3.77	110%	24.97	27.90	2.93	112%
16	0.66	0.74	0.08	112%	0.31	0.39	0.08	126%	76	41.96	46.08	4.12	110%	27.36	30.53	3.17	112%
17	0.78	0.87	0.09	112%	0.33	0.41	0.08	124%	77	46.42	50.92	4.50	110%	29.98	33.41	3.43	111%
18	0.85	0.94	0.09	111%	0.35	0.43	0.08	123%	78	51.64	56.56	4.92	110%	32.86	36.58	3.72	111%
19	0.89	0.98	0.09	110%	0.37	0.46	0.09	124%	79	57.67	63.06	5.39	109%	36.01	40.05	4.04	111%
20	0.90	1.00	0.10	111%	0.38	0.47	0.09	124%	80	64.23	70.14	5.91	109%	39.46	43.86	4.40	111%
21	0.90	1.00	0.10	111%	0.39	0.48	0.09	123%	81	71.70	78.19	6.49	109%	44.32	49.11	4.79	111%
22	0.91	1.02	0.11	112%	0.40	0.50	0.10	125%	82	79.41	86.54	7.13	109%	49.73	54.95	5.22	110%
23	0.92	1.03	0.11	112%	0.40	0.50	0.10	125%	83	87.67	95.51	7.84	109%	55.11	60.81	5.70	110%
24	0.93	1.05	0.12	113%	0.41	0.52	0.11	127%	84	96.80	105.43	8.63	109%	61.04	67.27	6.23	110%
25	0.95	1.07	0.12	113%	0.42	0.54	0.12	129%	85	107.06	116.57	9.51	109%	67.64	74.45	6.81	110%
26	0.99	1.12	0.13	113%	0.44	0.56	0.12	127%	86	118.42	128.91	10.49	109%	73.54	80.99	7.45	110%
27	1.03	1.17	0.14	114%	0.47	0.60	0.13	128%	87	130.79	142.35	11.56	109%	82.62	90.79	8.17	110%
28	1.02	1.17	0.15	115%	0.49	0.63	0.14	129%	88	143.99	156.73	12.74	109%	92.11	101.07	8.96	110%
29	0.99	1.15	0.16	116%	0.52	0.66	0.14	127%	89	157.86	171.88	14.02	109%	102.19	112.02	9.83	110%
30	0.97	1.14	0.17	118%	0.53	0.68	0.15	128%	90	172.25	187.66	15.41	109%	111.16	121.92	10.76	110%
31	0.95	1.13	0.18	119%	0.57	0.73	0.16	128%	91	185.54	202.44	16.90	109%	115.05	126.85	11.80	110%
32	0.94	1.13	0.19	120%	0.60	0.77	0.17	128%	92	199.31	217.83	18.52	109%	123.82	136.88	13.06	111%
33	0.95	1.15	0.20	121%	0.64	0.82	0.18	128%	93	213.73	234.04	20.31	110%	137.10	151.64	14.54	111%
34	0.97	1.18	0.21	122%	0.69	0.88	0.19	128%	94	228.89	251.14	22.25	110%	154.08	170.31	16.23	111%
35	0.99	1.21	0.22	122%	0.76	0.97	0.21	128%	95	244.81	269.17	24.36	110%	175.58	193.66	18.08	110%
36	1.04	1.28	0.24	123%	0.81	1.03	0.22	127%	96	259.01	285.64	26.63	110%	195.67	215.66	19.99	110%
37	1.09	1.34	0.25	123%	0.88	1.11	0.23	126%	97	274.03	303.18	29.15	111%	216.53	238.48	21.95	110%
38	1.17	1.44	0.27	123%	0.92	1.17	0.25	127%	98	289.92	321.88	31.96	111%	218.32	242.16	23.84	111%
39	1.25	1.54	0.29	123%	0.97	1.23	0.26	127%	99	306.74	341.85	35.11	111%	228.83	255.23	26.40	112%
40	1.34	1.65	0.31	123%	1.02	1.30	0.28	127%	100	324.53	363.19	38.66	112%	246.10	275.73	29.63	112%
41	1.46	1.79	0.33	123%	1.08	1.38	0.30	128%	101	343.35	380.08	36.73	111%	269.69	297.84	28.15	110%
42	1.61	1.96	0.35	122%	1.16	1.48	0.32	128%	102	363.27	398.06	34.79	110%	295.54	322.21	26.67	109%
43	1.78	2.15	0.37	121%	1.25	1.59	0.34	127%	103	384.34	417.20	32.86	109%	323.87	349.06	25.19	108%
44	1.99	2.39	0.40	120%	1.36	1.72	0.36	126%	104	406.63	437.56	30.93	108%	354.91	378.61	23.70	107%
45	2.22	2.65	0.43	119%	1.49	1.87	0.38	126%	105	430.21	459.21	29.00	107%	388.35	410.57	22.22	106%
46	2.44	2.90	0.46	119%	1.64	2.05	0.41	125%	106	455.16	482.22	27.06	106%	422.59	443.33	20.74	105%
47	2.68	3.17	0.49	118%	1.83	2.27	0.44	124%	107	481.56	506.69	25.13	105%	457.63	476.89	19.26	104%
48	2.81	3.33	0.52	119%	2.04	2.50	0.46	123%	108	509.49	532.69	23.20	105%	492.87	510.65	17.78	104%
49	2.96	3.52	0.56	119%	2.28	2.78	0.50	122%	109	539.05	560.31	21.26	104%	529.51	545.81	16.30	103%
50	3.17	3.76	0.59	119%	2.55	3.08	0.53	121%	110	570.31	589.64	19.33	103%	566.95	581.77	14.82	103%
51	3.43	4.06	0.63	118%	2.85	3.41	0.56	120%	111	603.39	620.79	17.40	103%	603.00	616.33	13.33	102%
52	3.79	4.47	0.68	118%	3.19	3.79	0.60	119%	112	638.38	653.84	15.46	102%	638.00	649.85	11.85	102%
53	4.20	4.93	0.73	117%	3.56	4.20	0.64	118%	113	675.41	688.94	13.53	102%	670.00	680.37	10.37	102%
54	4.72	5.50	0.78	117%	3.95	4.63	0.68	117%	114	714.58	726.18	11.60	102%	714.50	723.39	8.89	101%
55	5.34	6.17	0.83	116%	4.37	5.10	0.73	117%	115	756.03	765.70	9.67	101%	756.00	763.41	7.41	101%
56	5.99	6.88	0.89	115%	4.85	5.63	0.78	116%	116	799.88	807.61	7.73	101%	799.00	804.93	5.93	101%
57	6.68	7.64	0.96	114%	5.36	6.19	0.83	115%	117	846.27	852.07	5.80	101%	846.00	850.44	4.44	101%
58	7.24	8.27	1.03	114%	5.91	6.80	0.89	115%	118	895.36	899.23	3.87	100%	889.48	892.44	2.96	100%
59	7.89	8.99	1.10	114%	6.44	7.39	0.95	115%	119	947.29	949.22	1.93	100%	933.63	935.11	1.48	100%
120	1000.00	1000.00	0.00	100%	1000.00	1000.00	0.00	100%	120	1000.00	1000.00	0.00	100%	1000.00	1000.00	0.00	100%

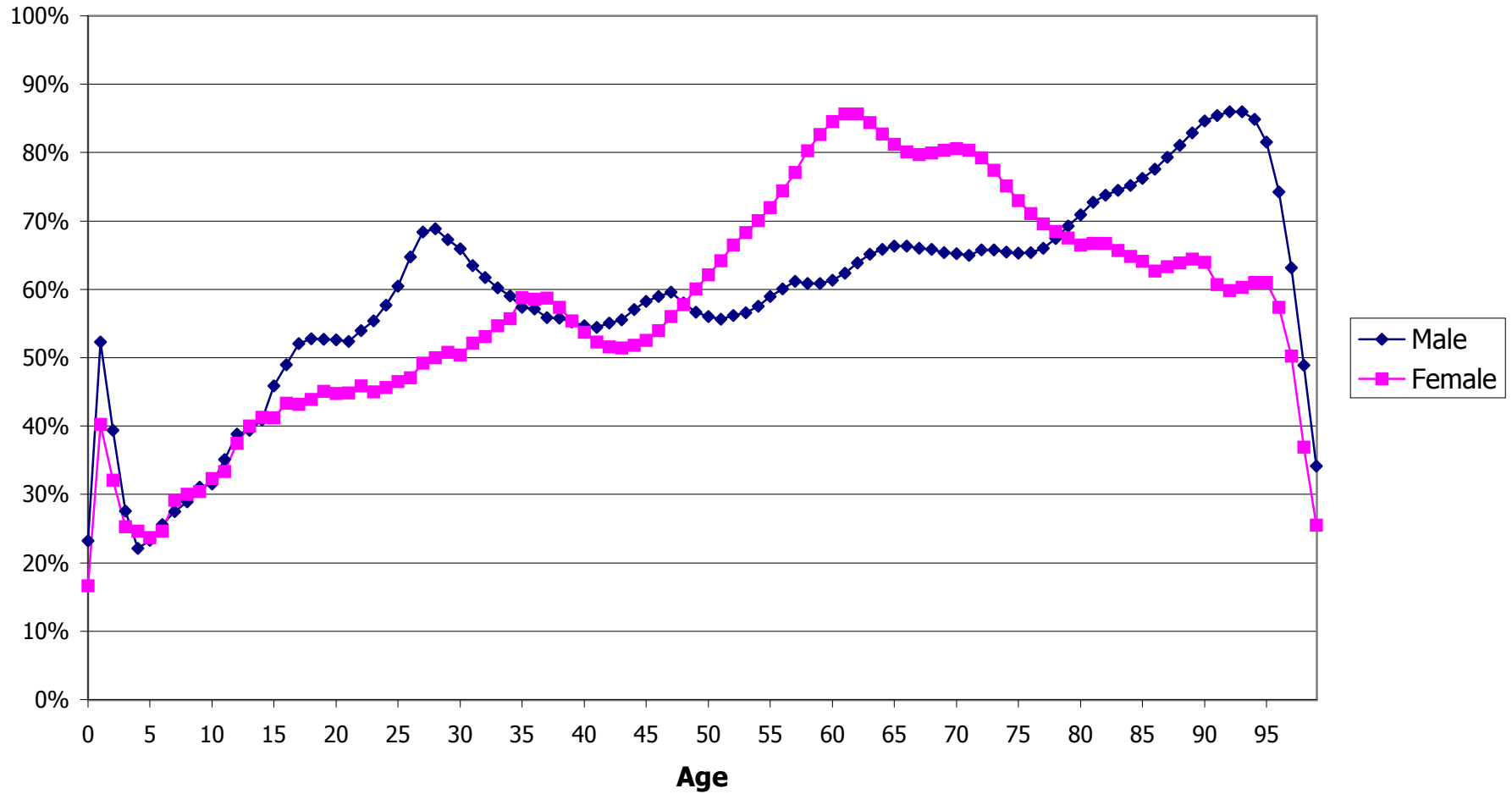
Proposed 2001 CSO Table as a % of 2001 Valuation Basic Table Composite, Ultimate



1980 CSO Table v. Proposed 2001 CSO Table -- Composite -- Ultimate -- 1000qx

(1) Age	(2) Male				(3) Female				(1) Age	(2) Male				(3) Female			
	1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)		1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)
0	4.18	0.97	-3.21	23%	2.89	0.48	-2.41	17%	60	16.08	9.86	-6.22	61%	9.47	8.01	-1.46	85%
1	1.07	0.56	-0.51	52%	0.87	0.35	-0.52	40%	61	17.54	10.94	-6.60	62%	10.13	8.68	-1.45	86%
2	0.99	0.39	-0.60	39%	0.81	0.26	-0.55	32%	62	19.19	12.25	-6.94	64%	10.96	9.39	-1.57	86%
3	0.98	0.27	-0.71	28%	0.79	0.20	-0.59	25%	63	21.06	13.71	-7.35	65%	12.02	10.14	-1.88	84%
4	0.95	0.21	-0.74	22%	0.77	0.19	-0.58	25%	64	23.14	15.24	-7.90	66%	13.25	10.96	-2.29	83%
5	0.90	0.21	-0.69	23%	0.76	0.18	-0.58	24%	65	25.42	16.85	-8.57	66%	14.59	11.85	-2.74	81%
6	0.86	0.22	-0.64	26%	0.73	0.18	-0.55	25%	66	27.85	18.47	-9.38	66%	16.00	12.82	-3.18	80%
7	0.80	0.22	-0.58	28%	0.72	0.21	-0.51	29%	67	30.44	20.09	-10.35	66%	17.43	13.89	-3.54	80%
8	0.76	0.22	-0.54	29%	0.70	0.21	-0.49	30%	68	33.19	21.85	-11.34	66%	18.84	15.07	-3.77	80%
9	0.74	0.23	-0.51	31%	0.69	0.21	-0.48	30%	69	36.17	23.64	-12.53	65%	20.36	16.36	-4.00	80%
10	0.73	0.23	-0.50	32%	0.68	0.22	-0.46	32%	70	39.51	25.77	-13.74	65%	22.11	17.81	-4.30	81%
11	0.77	0.27	-0.50	35%	0.69	0.23	-0.46	33%	71	43.30	28.15	-15.15	65%	24.23	19.47	-4.76	80%
12	0.85	0.33	-0.52	39%	0.72	0.27	-0.45	38%	72	47.65	31.32	-16.33	66%	26.87	21.30	-5.57	79%
13	0.99	0.39	-0.60	39%	0.75	0.30	-0.45	40%	73	52.64	34.62	-18.02	66%	30.11	23.30	-6.81	77%
14	1.15	0.47	-0.68	41%	0.80	0.33	-0.47	41%	74	58.19	38.08	-20.11	65%	33.93	25.50	-8.43	75%
15	1.33	0.61	-0.72	46%	0.85	0.35	-0.50	41%	75	64.19	41.91	-22.28	65%	38.24	27.90	-10.34	73%
16	1.51	0.74	-0.77	49%	0.90	0.39	-0.51	43%	76	70.53	46.08	-24.45	65%	42.97	30.53	-12.44	71%
17	1.67	0.87	-0.80	52%	0.95	0.41	-0.54	43%	77	77.12	50.92	-26.20	66%	48.04	33.41	-14.63	70%
18	1.78	0.94	-0.84	53%	0.98	0.43	-0.55	44%	78	83.90	56.56	-27.34	67%	53.45	36.58	-16.87	68%
19	1.86	0.98	-0.88	53%	1.02	0.46	-0.56	45%	79	91.05	63.06	-27.99	69%	59.35	40.05	-19.30	67%
20	1.90	1.00	-0.90	53%	1.05	0.47	-0.58	45%	80	98.87	70.14	-28.73	71%	65.99	43.86	-22.13	66%
21	1.91	1.00	-0.91	52%	1.07	0.48	-0.59	45%	81	107.48	78.19	-29.29	73%	73.60	49.11	-24.49	67%
22	1.89	1.02	-0.87	54%	1.09	0.50	-0.59	46%	82	117.25	86.54	-30.71	74%	82.40	54.95	-27.45	67%
23	1.86	1.03	-0.83	55%	1.11	0.50	-0.61	45%	83	128.26	95.51	-32.75	74%	92.53	60.81	-31.72	66%
24	1.82	1.05	-0.77	58%	1.14	0.52	-0.62	46%	84	140.25	105.43	-34.82	75%	103.81	67.27	-36.54	65%
25	1.77	1.07	-0.70	60%	1.16	0.54	-0.62	47%	85	152.95	116.57	-36.38	76%	116.10	74.45	-41.65	64%
26	1.73	1.12	-0.61	65%	1.19	0.56	-0.63	47%	86	166.09	128.91	-37.18	78%	129.29	80.99	-48.30	63%
27	1.71	1.17	-0.54	68%	1.22	0.60	-0.62	49%	87	179.55	142.35	-37.20	79%	143.32	90.79	-52.53	63%
28	1.70	1.17	-0.53	69%	1.26	0.63	-0.63	50%	88	193.27	156.73	-36.54	81%	158.18	101.07	-57.11	64%
29	1.71	1.15	-0.56	67%	1.30	0.66	-0.64	51%	89	207.29	171.88	-35.41	83%	173.94	112.02	-61.92	64%
30	1.73	1.14	-0.59	66%	1.35	0.68	-0.67	50%	90	221.77	187.66	-34.11	85%	190.75	121.92	-68.83	64%
31	1.78	1.13	-0.65	63%	1.40	0.73	-0.67	52%	91	236.98	202.44	-34.54	85%	208.87	126.85	-82.02	61%
32	1.83	1.13	-0.70	62%	1.45	0.77	-0.68	53%	92	253.45	217.83	-35.62	86%	228.81	136.88	-91.93	60%
33	1.91	1.15	-0.76	60%	1.50	0.82	-0.68	55%	93	272.11	234.04	-38.07	86%	251.51	151.64	-99.87	60%
34	2.00	1.18	-0.82	59%	1.58	0.88	-0.70	56%	94	295.90	251.14	-44.76	85%	279.31	170.31	-109.00	61%
35	2.11	1.21	-0.90	57%	1.65	0.97	-0.68	59%	95	329.96	269.17	-60.79	82%	317.32	193.66	-123.66	61%
36	2.24	1.28	-0.96	57%	1.76	1.03	-0.73	59%	96	384.55	285.64	-98.91	74%	375.74	215.66	-160.08	57%
37	2.40	1.34	-1.06	56%	1.89	1.11	-0.78	59%	97	480.20	303.18	-177.02	63%	474.97	238.48	-236.49	50%
38	2.58	1.44	-1.14	56%	2.04	1.17	-0.87	57%	98	657.98	321.88	-336.10	49%	655.85	242.16	-413.69	37%
39	2.79	1.54	-1.25	55%	2.22	1.23	-0.99	55%	99	1000.00	341.85	-658.15	34%	1000.00	255.23	-744.77	26%
40	3.02	1.65	-1.37	55%	2.42	1.30	-1.12	54%	100		363.19				275.73		
41	3.29	1.79	-1.50	54%	2.64	1.38	-1.26	52%	101		380.08				297.84		
42	3.56	1.96	-1.60	55%	2.87	1.48	-1.39	52%	102		398.06				322.21		
43	3.87	2.15	-1.72	56%	3.09	1.59	-1.50	51%	103		417.20				349.06		
44	4.19	2.39	-1.80	57%	3.32	1.72	-1.60	52%	104		437.56				378.61		
45	4.55	2.65	-1.90	58%	3.56	1.87	-1.69	53%	105		459.21				410.57		
46	4.92	2.90	-2.02	59%	3.80	2.05	-1.75	54%	106		482.22				443.33		
47	5.32	3.17	-2.15	60%	4.05	2.27	-1.78	56%	107		506.69				476.89		
48	5.74	3.33	-2.41	58%	4.33	2.50	-1.83	58%	108		532.69				510.65		
49	6.21	3.52	-2.69	57%	4.63	2.78	-1.85	60%	109		560.31				545.81		
50	6.71	3.76	-2.95	56%	4.96	3.08	-1.88	62%	110		589.64				581.77		
51	7.30	4.06	-3.24	56%	5.31	3.41	-1.90	64%	111		620.79				616.33		
52	7.96	4.47	-3.49	56%	5.70	3.79	-1.91	66%	112		653.84				649.85		
53	8.71	4.93	-3.78	57%	6.15	4.20	-1.95	68%	113		688.94				680.37		
54	9.56	5.50	-4.06	58%	6.61	4.63	-1.98	70%	114		726.18				723.39		
55	10.47	6.17	-4.30	59%	7.09	5.10	-1.99	72%	115		765.70				763.41		
56	11.46	6.88	-4.58	60%	7.57	5.63	-1.94	74%	116		807.61				804.93		
57	12.49	7.64	-4.85	61%	8.03	6.19	-1.84	77%	117		852.07				850.44		
58	13.59	8.27	-5.32	61%	8.47	6.80	-1.67	80%	118		899.23				892.44		
59	14.77	8.99	-5.78	61%	8.94	7.39	-1.55	83%	119		949.22				935.11		
120											1000.00				1000.00		

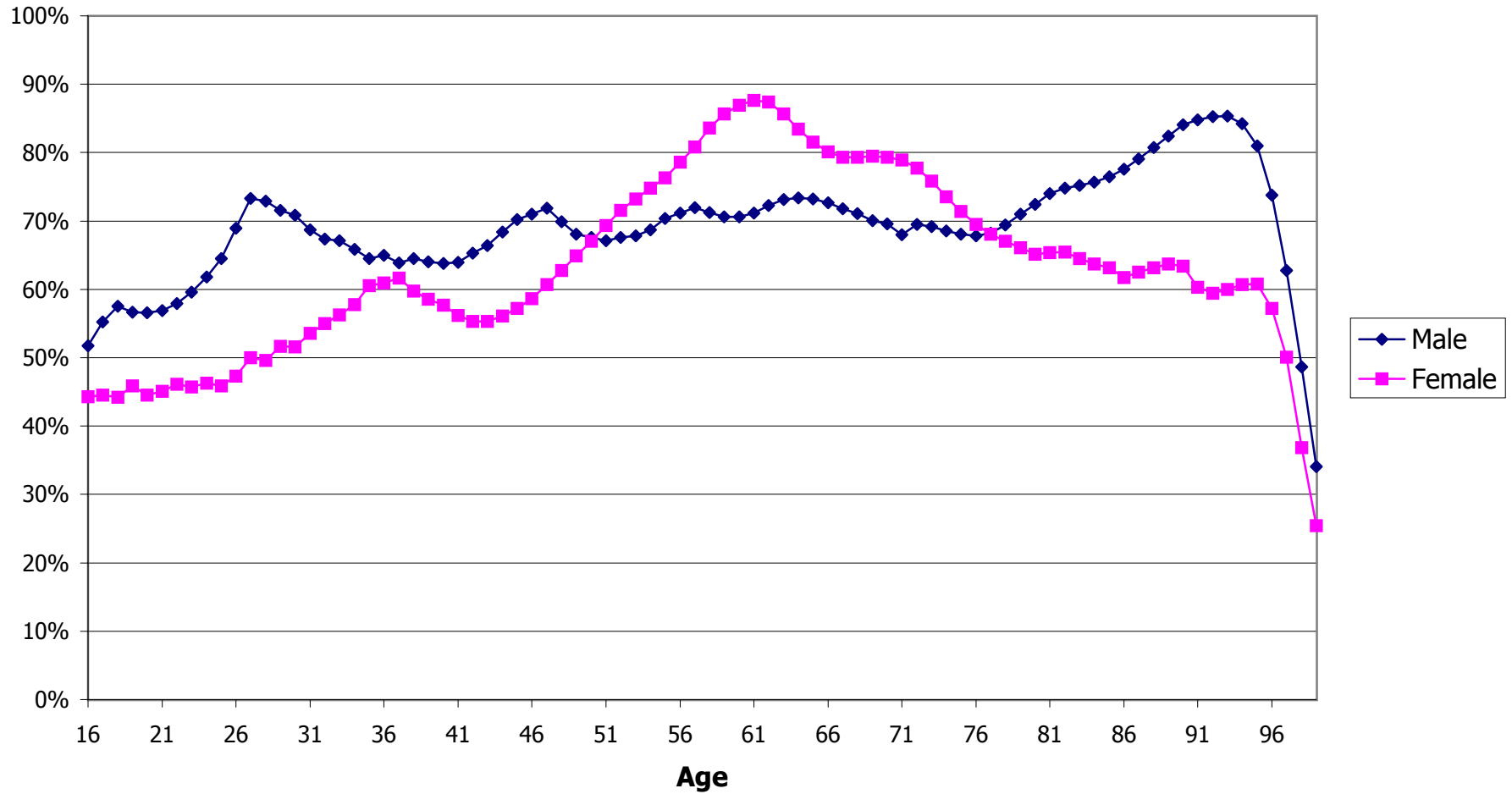
Proposed 2001 CSO Table as a % of 1980 CSO Table Composite, Ultimate



1980 CSO Table v. Proposed 2001 CSO Table -- Nonsmoker -- Ultimate -- 1000qx

(1) Age	(2) (3) (4) (5) Male				(6) (7) (8) (9) Female				(1) Age	(2) (3) (4) (5) Male				(6) (7) (8) (9) Female			
	1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)		1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)
0									60	12.64	8.92	-3.72	71%	8.51	7.40	-1.11	87%
1									61	13.94	9.92	-4.02	71%	9.16	8.03	-1.13	88%
2									62	15.42	11.14	-4.28	72%	9.98	8.72	-1.26	87%
3									63	17.11	12.51	-4.60	73%	11.01	9.43	-1.58	86%
4									64	19.02	13.95	-5.07	73%	12.23	10.20	-2.03	83%
5									65	21.13	15.47	-5.66	73%	13.55	11.05	-2.50	82%
6									66	23.40	17.01	-6.39	73%	14.97	11.99	-2.98	80%
7									67	25.86	18.57	-7.29	72%	16.41	13.02	-3.39	79%
8									68	28.50	20.25	-8.25	71%	17.86	14.17	-3.69	79%
9									69	31.38	21.99	-9.39	70%	19.41	15.43	-3.98	79%
10									70	34.63	24.10	-10.53	70%	21.20	16.82	-4.38	79%
11									71	38.91	26.46	-12.45	68%	23.34	18.42	-4.92	79%
12									72	42.56	29.56	-13.00	69%	25.99	20.21	-5.78	78%
13									73	47.44	32.83	-14.61	69%	29.22	22.15	-7.07	76%
14									74	52.92	36.27	-16.65	69%	33.02	24.28	-8.74	74%
15	1.29				0.84				75	58.80	40.03	-18.77	68%	37.32	26.64	-10.68	71%
16	1.43	0.74	-0.69	52%	0.88	0.39	-0.49	44%	76	65.06	44.13	-20.93	68%	42.04	29.23	-12.81	70%
17	1.54	0.85	-0.69	55%	0.92	0.41	-0.51	45%	77	71.64	48.89	-22.75	68%	47.11	32.08	-15.03	68%
18	1.60	0.92	-0.68	58%	0.95	0.42	-0.53	44%	78	78.47	54.45	-24.02	69%	52.53	35.23	-17.30	67%
19	1.66	0.94	-0.72	57%	0.98	0.45	-0.53	46%	79	85.72	60.87	-24.85	71%	58.45	38.63	-19.82	66%
20	1.68	0.95	-0.73	57%	1.01	0.45	-0.56	45%	80	93.67	67.87	-25.80	72%	65.12	42.43	-22.69	65%
21	1.67	0.95	-0.72	57%	1.02	0.46	-0.56	45%	81	102.52	75.84	-26.68	74%	72.76	47.59	-25.17	65%
22	1.64	0.95	-0.69	58%	1.04	0.48	-0.56	46%	82	112.52	84.14	-28.38	75%	81.59	53.41	-28.18	65%
23	1.61	0.96	-0.65	60%	1.05	0.48	-0.57	46%	83	123.79	93.09	-30.70	75%	91.76	59.21	-32.55	65%
24	1.57	0.97	-0.60	62%	1.08	0.50	-0.58	46%	84	136.11	103.00	-33.11	76%	103.03	65.62	-37.41	64%
25	1.52	0.98	-0.54	64%	1.09	0.50	-0.59	46%	85	149.20	114.07	-35.13	76%	115.38	72.84	-42.54	63%
26	1.48	1.02	-0.46	69%	1.12	0.53	-0.59	47%	86	162.80	126.34	-36.46	78%	128.58	79.39	-49.19	62%
27	1.46	1.07	-0.39	73%	1.14	0.57	-0.57	50%	87	176.79	139.74	-37.05	79%	142.71	89.25	-53.46	63%
28	1.44	1.05	-0.39	73%	1.17	0.58	-0.59	50%	88	190.89	154.10	-36.79	81%	157.61	99.55	-58.06	63%
29	1.44	1.03	-0.41	72%	1.20	0.62	-0.58	52%	89	205.29	169.25	-36.04	82%	173.51	110.53	-62.98	64%
30	1.44	1.02	-0.42	71%	1.24	0.64	-0.60	52%	90	220.19	185.06	-35.13	84%	190.39	120.65	-69.74	63%
31	1.47	1.01	-0.46	69%	1.27	0.68	-0.59	54%	91	235.84	199.93	-35.91	85%	208.58	125.77	-82.81	60%
32	1.50	1.01	-0.49	67%	1.31	0.72	-0.59	55%	92	252.75	215.43	-37.32	85%	228.60	135.84	-92.76	59%
33	1.55	1.04	-0.51	67%	1.35	0.76	-0.59	56%	93	271.63	231.78	-39.85	85%	251.40	150.78	-100.62	60%
34	1.61	1.06	-0.55	66%	1.42	0.82	-0.60	58%	94	295.65	249.05	-46.60	84%	279.31	169.64	-109.67	61%
35	1.69	1.09	-0.60	64%	1.47	0.89	-0.58	61%	95	329.95	267.19	-62.76	81%	317.32	192.92	-124.40	61%
36	1.77	1.15	-0.62	65%	1.56	0.95	-0.61	61%	96	384.55	283.79	-100.76	74%	375.74	215.03	-160.71	57%
37	1.88	1.20	-0.68	64%	1.67	1.03	-0.64	62%	97	480.20	301.49	-178.71	63%	474.97	237.79	-237.18	50%
38	2.00	1.29	-0.71	65%	1.79	1.07	-0.72	60%	98	657.98	320.38	-337.60	49%	655.85	241.69	-414.16	37%
39	2.14	1.37	-0.77	64%	1.93	1.13	-0.80	59%	99	1000.00	340.54	-659.46	34%	1000.00	254.74	-745.26	25%
40	2.29	1.46	-0.83	64%	2.08	1.20	-0.88	58%	100		362.10				275.46		
41	2.47	1.58	-0.89	64%	2.26	1.27	-0.99	56%	101		379.21				297.55		
42	2.65	1.73	-0.92	65%	2.44	1.35	-1.09	55%	102		397.44				322.19		
43	2.86	1.90	-0.96	66%	2.62	1.45	-1.17	55%	103		416.84				349.04		
44	3.07	2.10	-0.97	68%	2.80	1.57	-1.23	56%	104		437.48				378.60		
45	3.32	2.33	-0.99	70%	2.99	1.71	-1.28	57%	105		459.13				410.56		
46	3.59	2.55	-1.04	71%	3.19	1.87	-1.32	59%	106		482.15				443.32		
47	3.88	2.79	-1.09	72%	3.41	2.07	-1.34	61%	107		506.62				476.88		
48	4.19	2.93	-1.26	70%	3.65	2.29	-1.36	63%	108		532.63				510.64		
49	4.54	3.09	-1.45	68%	3.90	2.53	-1.37	65%	109		560.26				545.80		
50	4.91	3.32	-1.59	68%	4.19	2.81	-1.38	67%	110		589.59				581.76		
51	5.35	3.59	-1.76	67%	4.50	3.12	-1.38	69%	111		620.74				616.32		
52	5.86	3.96	-1.90	68%	4.85	3.47	-1.38	72%	112		653.80				649.84		
53	6.43	4.36	-2.07	68%	5.26	3.85	-1.41	73%	113		688.91				680.36		
54	7.09	4.87	-2.22	69%	5.68	4.25	-1.43	75%	114		726.15				723.38		
55	7.82	5.50	-2.32	70%	6.13	4.68	-1.45	76%	115		765.67				763.40		
56	8.63	6.14	-2.49	71%	6.59	5.18	-1.41	79%	116		807.59				804.92		
57	9.49	6.83	-2.66	72%	7.05	5.70	-1.35	81%	117		852.05				850.44		
58	10.42	7.42	-3.00	71%	7.49	6.26	-1.23	84%	118		899.22				892.44		
59	11.47	8.10	-3.37	71%	7.96	6.82	-1.14	86%	119		949.22				935.11		
									120		1000.00				1000.00		

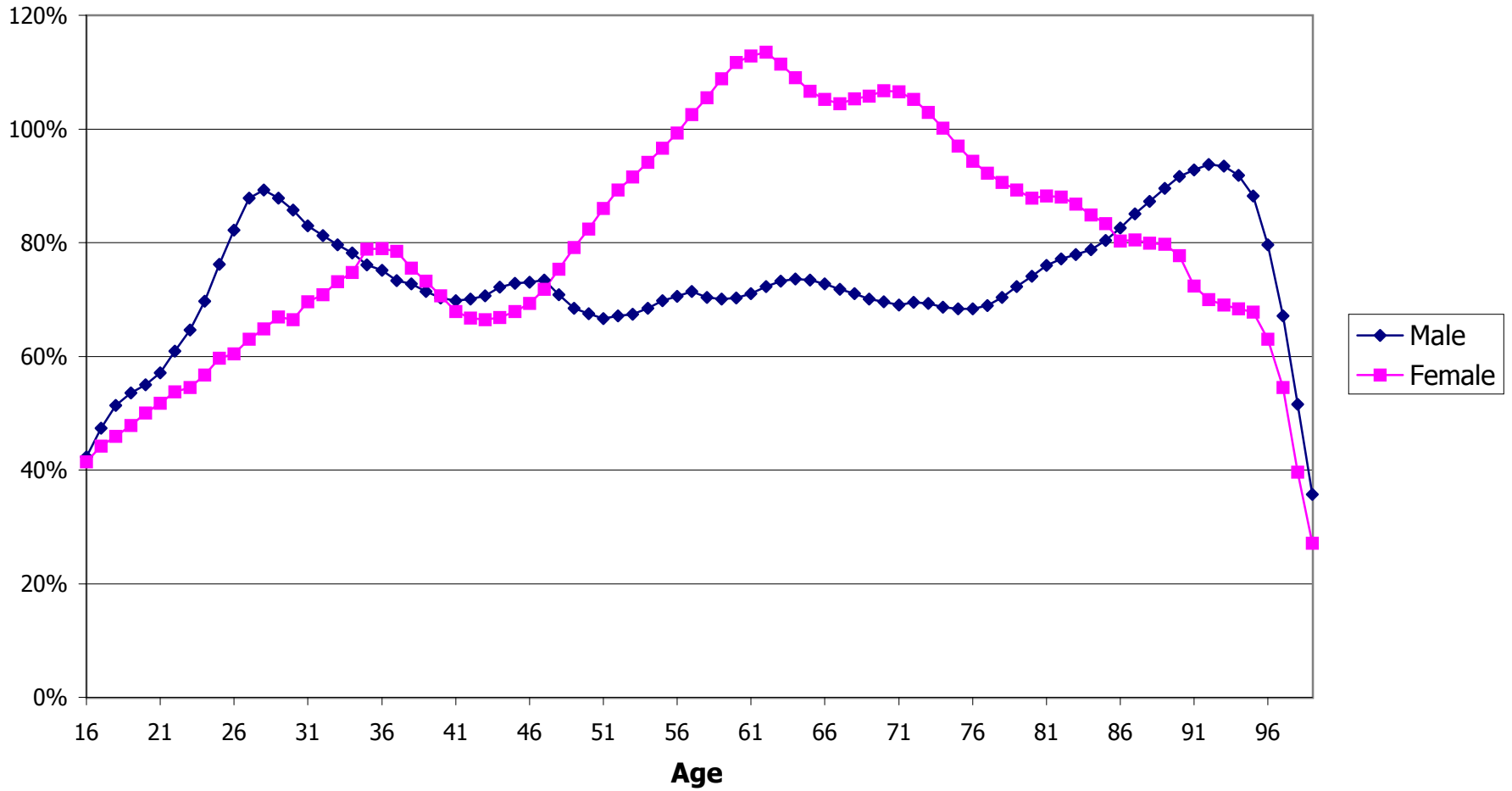
Proposed 2001 CSO Table as a % of 1980 CSO Table Nonsmoker, Ultimate



1980 CSO Table v. Proposed 2001 CSO Table -- Smoker -- Ultimate -- 1000qx

(1) Age	(2) (3) (4) (5) Male				(6) (7) (8) (9) Female				(1) Age	(2) (3) (4) (5) Male				(6) (7) (8) (9) Female			
	1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)		1980	2001	(3) - (2)	(3) / (2)	1980	2001	(7) - (6)	(7) / (6)
0									60	23.19	16.29	-6.90	70%	12.51	13.97	1.46	112%
1									61	25.26	17.94	-7.32	71%	13.36	15.08	1.72	113%
2									62	27.59	19.93	-7.66	72%	14.39	16.33	1.94	113%
3									63	30.23	22.14	-8.09	73%	15.78	17.58	1.80	111%
4									64	33.14	24.40	-8.74	74%	17.33	18.90	1.57	109%
5									65	36.29	26.63	-9.66	73%	19.07	20.34	1.27	107%
6									66	39.57	28.78	-10.79	73%	20.79	21.87	1.08	105%
7									67	43.01	30.87	-12.14	72%	22.58	23.59	1.01	104%
8									68	46.55	33.07	-13.48	71%	24.20	25.48	1.28	105%
9									69	50.32	35.25	-15.07	70%	26.02	27.53	1.51	106%
10									70	54.48	37.89	-16.59	70%	27.95	29.82	1.87	107%
11									71	59.09	40.78	-18.31	69%	30.45	32.43	1.98	107%
12									72	64.33	44.71	-19.62	70%	33.55	35.31	1.76	105%
13									73	70.23	48.66	-21.57	69%	37.33	38.41	1.08	103%
14									74	76.66	52.65	-24.01	69%	41.74	41.81	0.07	100%
15	1.65				0.94				75	83.77	57.29	-26.48	68%	46.64	45.23	-1.41	97%
16	1.87	0.79	-1.08	42%	0.99	0.41	-0.58	41%	76	91.10	62.23	-28.87	68%	51.92	48.96	-2.96	94%
17	2.05	0.97	-1.08	47%	1.04	0.46	-0.58	44%	77	98.52	67.94	-30.58	69%	57.46	52.97	-4.49	92%
18	2.16	1.11	-1.05	51%	1.09	0.50	-0.59	46%	78	105.91	74.54	-31.37	70%	63.23	57.29	-5.94	91%
19	2.26	1.21	-1.05	54%	1.13	0.54	-0.59	48%	79	113.49	82.05	-31.44	72%	69.41	61.96	-7.45	89%
20	2.31	1.27	-1.04	55%	1.16	0.58	-0.58	50%	80	121.59	90.07	-31.52	74%	76.26	66.99	-9.27	88%
21	2.33	1.33	-1.00	57%	1.18	0.61	-0.57	52%	81	130.41	99.05	-31.36	76%	84.00	74.07	-9.93	88%
22	2.30	1.40	-0.90	61%	1.21	0.65	-0.56	54%	82	140.20	108.11	-32.09	77%	92.84	81.76	-11.08	88%
23	2.26	1.46	-0.80	65%	1.23	0.67	-0.56	54%	83	151.03	117.61	-33.42	78%	102.87	89.25	-13.62	87%
24	2.21	1.54	-0.67	70%	1.27	0.72	-0.55	57%	84	162.49	127.94	-34.55	79%	114.65	97.30	-17.35	85%
25	2.14	1.63	-0.51	76%	1.29	0.77	-0.52	60%	85	174.20	140.09	-34.11	80%	126.42	105.41	-21.01	83%
26	2.08	1.71	-0.37	82%	1.34	0.81	-0.53	60%	86	185.78	153.39	-32.39	83%	139.79	112.17	-27.62	80%
27	2.06	1.81	-0.25	88%	1.38	0.87	-0.51	63%	87	197.06	167.69	-29.37	85%	152.67	122.89	-29.78	80%
28	2.04	1.82	-0.22	89%	1.42	0.92	-0.50	65%	88	209.37	182.72	-26.65	87%	167.23	133.59	-33.64	80%
29	2.06	1.81	-0.25	88%	1.48	0.99	-0.49	67%	89	221.52	198.27	-23.25	90%	181.07	144.35	-36.72	80%
30	2.10	1.80	-0.30	86%	1.55	1.03	-0.52	66%	90	233.69	214.13	-19.56	92%	197.01	153.05	-43.96	78%
31	2.17	1.80	-0.37	83%	1.61	1.12	-0.49	70%	91	246.12	228.43	-17.69	93%	214.00	154.94	-59.06	72%
32	2.24	1.82	-0.42	81%	1.68	1.19	-0.49	71%	92	259.33	243.02	-16.31	94%	232.54	162.66	-69.88	70%
33	2.35	1.87	-0.48	80%	1.75	1.28	-0.47	73%	93	276.30	258.10	-18.20	93%	253.55	175.10	-78.45	69%
34	2.48	1.94	-0.54	78%	1.86	1.39	-0.47	75%	94	298.15	273.74	-24.41	92%	279.31	190.97	-88.34	68%
35	2.63	2.00	-0.63	76%	1.94	1.53	-0.41	79%	95	329.96	291.05	-38.91	88%	317.32	214.97	-102.35	68%
36	2.81	2.11	-0.70	75%	2.09	1.65	-0.44	79%	96	384.55	306.33	-78.22	80%	375.74	236.91	-138.83	63%
37	3.04	2.23	-0.81	73%	2.28	1.79	-0.49	79%	97	480.20	322.44	-157.76	67%	474.97	258.95	-216.02	55%
38	3.30	2.40	-0.90	73%	2.49	1.88	-0.61	76%	98	657.98	339.45	-318.53	52%	655.85	260.01	-395.84	40%
39	3.60	2.57	-1.03	71%	2.73	2.00	-0.73	73%	99	1000.00	357.42	-642.58	36%	1000.00	270.77	-729.23	27%
40	3.94	2.77	-1.17	70%	3.00	2.12	-0.88	71%	100		376.40				289.27		
41	4.34	3.03	-1.31	70%	3.33	2.26	-1.07	68%	101		390.77				309.03		
42	4.75	3.33	-1.42	70%	3.64	2.43	-1.21	67%	102		405.92				330.78		
43	5.22	3.69	-1.53	71%	3.96	2.63	-1.33	66%	103		421.83				354.11		
44	5.71	4.12	-1.59	72%	4.28	2.86	-1.42	67%	104		438.57				379.41		
45	6.27	4.57	-1.70	73%	4.61	3.13	-1.48	68%	105		460.15				411.32		
46	6.83	4.99	-1.84	73%	4.95	3.43	-1.52	69%	106		483.10				444.02		
47	7.44	5.46	-1.98	73%	5.31	3.81	-1.50	72%	107		507.51				477.53		
48	8.08	5.72	-2.36	71%	5.68	4.28	-1.40	75%	108		533.44				511.24		
49	8.80	6.02	-2.78	68%	6.08	4.81	-1.27	79%	109		561.01				546.35		
50	9.56	6.45	-3.11	67%	6.54	5.39	-1.15	82%	110		590.27				582.26		
51	10.44	6.96	-3.48	67%	7.00	6.02	-0.98	86%	111		621.35				616.78		
52	11.42	7.66	-3.76	67%	7.52	6.71	-0.81	89%	112		654.35				650.25		
53	12.54	8.45	-4.09	67%	8.13	7.44	-0.69	92%	113		689.38				680.72		
54	13.80	9.44	-4.36	68%	8.75	8.24	-0.51	94%	114		726.56				723.69		
55	15.14	10.56	-4.58	70%	9.40	9.08	-0.32	97%	115		766.01				763.66		
56	16.59	11.70	-4.89	71%	10.05	9.98	-0.07	99%	116		807.86				805.12		
57	18.09	12.91	-5.18	71%	10.67	10.94	0.27	103%	117		852.26				850.59		
58	19.69	13.86	-5.83	70%	11.25	11.87	0.62	106%	118		899.35				892.54		
59	21.35	14.96	-6.39	70%	11.85	12.90	1.05	109%	119		949.29				935.16		
									120		1000.00				1000.00		

Proposed 2001 CSO Table as a % of 1980 CSO Table Smoker, Ultimate



Appendix C

Statutory Reserve Comparisons

Male -- Issue Age 25 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 1.73		Alpha = 1.05		Alpha = -0.69		Alpha = 60%		
	Beta = 8.01		Beta = 6.26		Beta = -1.75		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.87	0.00	0.52	0.00	-0.34	0.00	60%		
5	28.62	28.41	23.05	22.99	-5.57	-5.42	81%	81%	
10	70.76	71.38	57.56	58.27	-13.19	-13.10	81%	82%	
15	121.12	122.56	99.91	101.42	-21.21	-21.14	82%	83%	
20	179.39	181.61	150.24	152.53	-29.15	-29.08	84%	84%	
25	245.69	248.73	208.48	211.67	-37.21	-37.07	85%	85%	
30	320.03	323.78	276.45	280.53	-43.58	-43.25	86%	87%	
35	400.43	404.75	351.80	356.60	-48.63	-48.15	88%	88%	
40	485.65	490.27	433.49	438.66	-52.16	-51.61	89%	89%	
45	571.87	576.49	518.21	523.81	-53.65	-52.68	91%	91%	
50	656.15	660.17	606.35	611.99	-49.80	-48.17	92%	93%	
55	731.01	734.08	692.45	697.58	-38.56	-36.51	95%	95%	
60	797.07	799.00	768.74	772.62	-28.32	-26.39	96%	97%	
65	850.08	851.00	829.78	831.75	-20.30	-19.25	98%	98%	
70	905.28	908.06	872.87	873.39	-32.41	-34.67	96%	96%	

Female -- Issue Age 25 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 1.14		Alpha = 0.53		Alpha = -0.61		Alpha = 47%		
	Beta = 6.51		Beta = 5.25		Beta = -1.26		Beta = 81%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.57	0.00	0.26	0.00	-0.30	0.00	47%		
5	23.84	23.73	20.68	20.81	-3.16	-2.91	87%	88%	
10	58.44	58.98	51.06	51.77	-7.38	-7.21	87%	88%	
15	99.72	100.91	87.44	88.80	-12.29	-12.12	88%	88%	
20	147.19	149.00	131.13	133.26	-16.06	-15.74	89%	89%	
25	201.61	204.19	182.49	185.37	-19.12	-18.82	91%	91%	
30	263.83	267.18	240.81	244.35	-23.01	-22.84	91%	91%	
35	334.55	338.91	305.35	309.48	-29.20	-29.42	91%	91%	
40	415.70	420.93	376.38	381.21	-39.32	-39.72	91%	91%	
45	503.62	509.57	454.25	459.72	-49.37	-49.84	90%	90%	
50	598.07	604.24	537.16	542.97	-60.91	-61.27	90%	90%	
55	689.05	694.61	622.17	628.09	-66.88	-66.52	90%	90%	
60	772.20	776.55	704.26	709.38	-67.94	-67.17	91%	91%	
65	840.50	843.49	775.55	779.14	-64.95	-64.35	92%	92%	
70	904.98	908.94	838.69	841.89	-66.29	-67.05	93%	93%	

Male -- Issue Age 35 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 2.07		Alpha = 1.18		Alpha = -0.88		Alpha = 57%		
	Beta = 12.51		Beta = 9.76		Beta = -2.75		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.03	0.00	0.59	0.00	-0.44	0.00	57%		
5	45.59	45.26	37.55	37.64	-8.04	-7.62	82%	83%	
10	108.99	109.51	91.45	92.37	-17.54	-17.14	84%	84%	
15	181.13	182.55	153.83	155.71	-27.30	-26.83	85%	85%	
20	262.02	264.21	226.62	229.46	-35.40	-34.75	86%	87%	
25	349.51	352.31	307.32	310.93	-42.19	-41.38	88%	88%	
30	442.23	445.36	394.81	398.81	-47.42	-46.55	89%	90%	
35	536.04	539.18	485.54	490.02	-50.50	-49.16	91%	91%	
40	627.76	630.23	579.94	584.45	-47.82	-45.77	92%	93%	
45	709.21	710.65	672.15	676.11	-37.06	-34.54	95%	95%	
50	781.09	781.30	753.86	756.48	-27.23	-24.82	97%	97%	
55	838.77	837.87	819.23	819.80	-19.55	-18.07	98%	98%	
60	898.83	899.97	865.38	864.41	-33.45	-35.56	96%	96%	

Female -- Issue Age 35 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 1.62		Alpha = 0.95		Alpha = -0.67		Alpha = 59%		
	Beta = 10.06		Beta = 8.26		Beta = -1.80		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.81	0.00	0.47	0.00	-0.33	0.00	59%		
5	36.77	36.51	31.93	32.04	-4.84	-4.47	87%	88%	
10	87.63	88.04	78.34	79.27	-9.29	-8.77	89%	90%	
15	145.96	147.18	132.91	134.62	-13.05	-12.56	91%	91%	
20	212.63	214.68	194.86	197.27	-17.77	-17.41	92%	92%	
25	288.42	291.55	263.42	266.47	-25.00	-25.08	91%	91%	
30	375.38	379.44	338.87	342.66	-36.51	-36.78	90%	90%	
35	469.61	474.43	421.60	426.07	-48.01	-48.37	90%	90%	
40	570.82	575.89	509.67	514.50	-61.15	-61.39	89%	89%	
45	668.32	672.73	599.97	604.92	-68.35	-67.81	90%	90%	
50	757.43	760.54	687.18	691.27	-70.25	-69.27	91%	91%	
55	830.61	832.28	762.91	765.38	-67.71	-66.90	92%	92%	
60	899.71	902.42	829.98	832.04	-69.73	-70.38	92%	92%	

Male -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 4.46		Alpha = 2.60		Alpha = -1.87		Alpha = 58%		
	Beta = 20.33		Beta = 15.91		Beta = -4.42		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	2.23	0.00	1.30	0.00	-0.93	0.00	58%		
5	68.90	67.49	57.82	57.42	-11.08	-10.07	84%	85%	
10	161.17	160.64	139.09	139.75	-22.08	-20.89	86%	87%	
15	260.97	261.14	229.18	230.71	-31.79	-30.43	88%	88%	
20	366.76	367.29	326.86	328.82	-39.90	-38.47	89%	90%	
25	473.77	474.32	428.16	430.64	-45.61	-43.67	90%	91%	
30	578.39	578.18	533.54	536.07	-44.85	-42.11	92%	93%	
35	671.31	669.93	636.49	638.40	-34.83	-31.53	95%	95%	
40	753.30	750.51	727.71	728.13	-25.60	-22.39	97%	97%	
45	819.11	815.05	800.69	798.83	-18.42	-16.23	98%	98%	
50	887.62	885.88	852.21	848.62	-35.41	-37.27	96%	96%	

Female -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 3.49		Alpha = 1.83		Alpha = -1.66		Alpha = 52%		
	Beta = 15.91		Beta = 13.31		Beta = -2.60		Beta = 84%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.74	0.00	0.92	0.00	-0.83	0.00	52%		
5	54.27	53.26	49.57	49.33	-4.70	-3.92	91%	93%	
10	128.29	128.20	117.63	118.16	-10.66	-10.04	92%	92%	
15	212.42	213.52	192.94	194.17	-19.48	-19.35	91%	91%	
20	308.96	311.10	275.83	277.88	-33.13	-33.22	89%	89%	
25	413.57	416.55	366.71	369.50	-46.85	-47.05	89%	89%	
30	525.93	529.18	463.46	466.65	-62.46	-62.53	88%	88%	
35	634.16	636.68	562.67	565.98	-71.49	-70.70	89%	89%	
40	733.08	734.17	658.47	660.85	-74.61	-73.32	90%	90%	
45	814.33	813.81	741.66	742.26	-72.67	-71.55	91%	91%	
50	891.04	891.67	815.34	815.48	-75.69	-76.19	92%	91%	

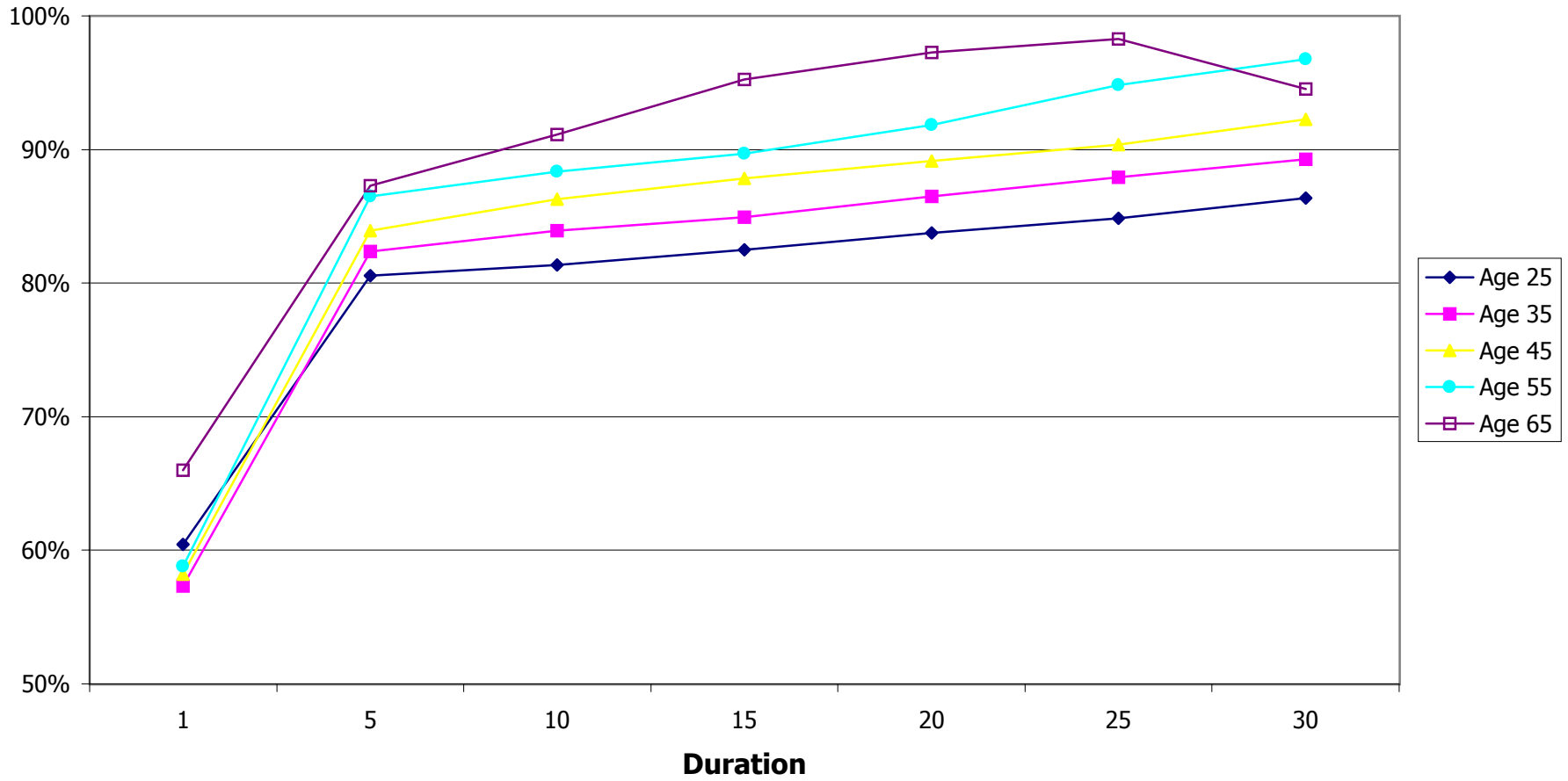
Male -- Issue Age 55 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 10.30		Alpha = 6.05		Alpha = -4.24		Alpha = 59%		
	Beta = 34.26		Beta = 26.91		Beta = -7.35		Beta = 79%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	5.15	0.00	3.03	0.00	-2.12	0.00	59%		
5	103.27	98.75	89.34	87.13	-13.93	-11.61	87%	88%	
10	232.31	228.23	205.25	203.56	-27.06	-24.67	88%	89%	
15	362.84	358.77	325.45	324.38	-37.39	-34.39	90%	90%	
20	490.46	485.47	450.50	449.49	-39.95	-35.98	92%	93%	
25	603.80	597.38	572.66	570.92	-31.14	-26.46	95%	96%	
30	703.81	695.68	680.91	677.39	-22.91	-18.29	97%	97%	
35	784.08	774.40	767.51	761.28	-16.58	-13.12	98%	98%	
40	867.65	860.80	828.65	820.37	-39.00	-40.44	96%	95%	

Female -- Issue Age 55 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 6.96		Alpha = 5.00		Alpha = -1.96		Alpha = 72%		
	Beta = 25.85		Beta = 21.95		Beta = -3.91		Beta = 85%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	3.48	0.00	2.50	0.00	-0.98	0.00	72%		
5	83.23	80.89	72.63	70.75	-10.60	-10.14	87%	87%	
10	196.05	194.92	168.22	167.27	-27.84	-27.65	86%	86%	
15	318.30	318.16	273.01	272.94	-45.28	-45.22	86%	86%	
20	449.61	449.78	384.59	384.96	-65.02	-64.82	86%	86%	
25	576.10	575.41	498.99	499.51	-77.11	-75.91	87%	87%	
30	691.70	689.34	609.46	608.90	-82.24	-80.44	88%	88%	
35	786.65	782.41	705.39	702.78	-81.26	-79.63	90%	90%	
40	876.29	873.40	790.36	787.22	-85.93	-86.18	90%	90%	

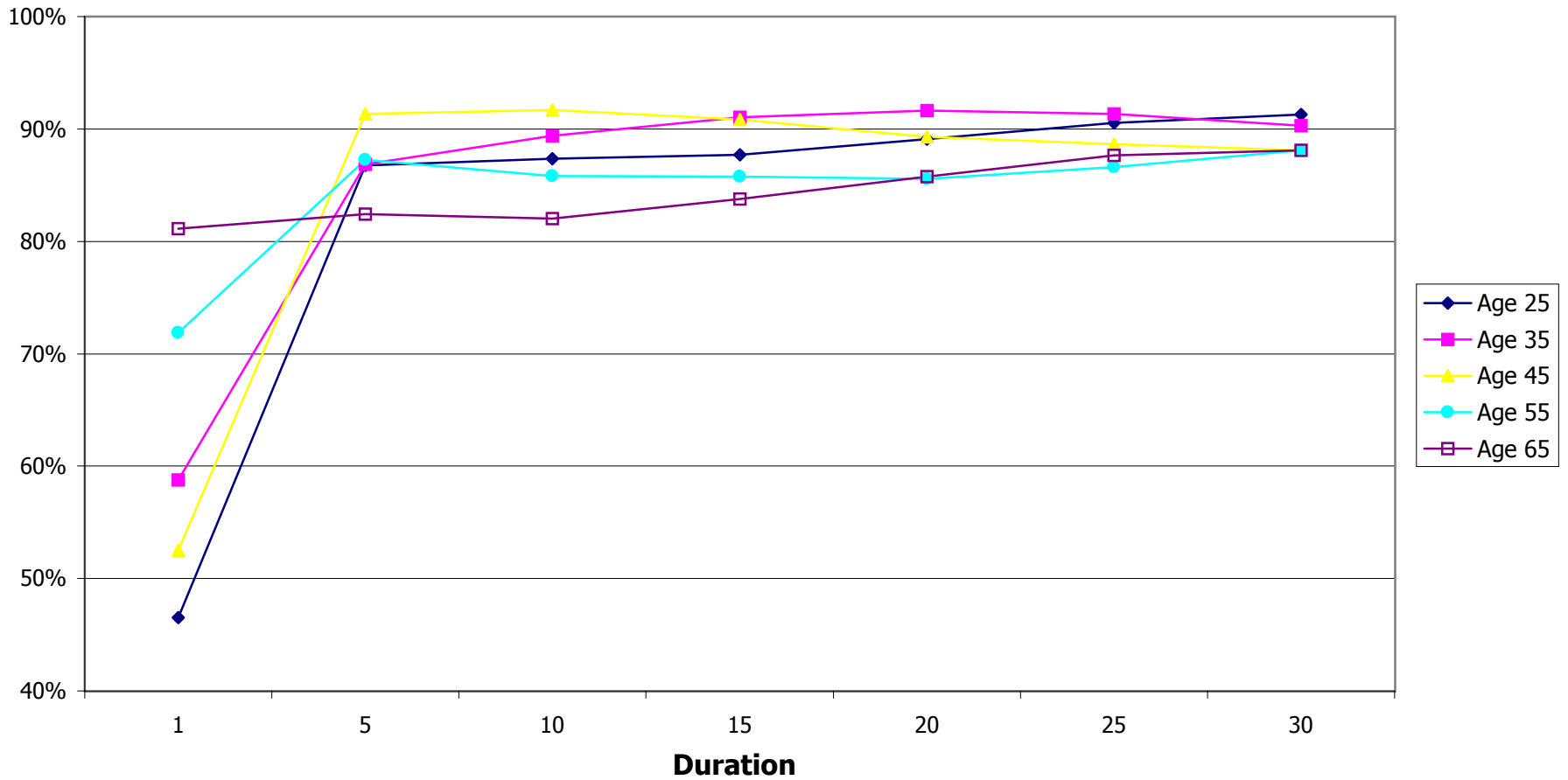
Male -- Issue Age 65 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 25.19		Alpha = 16.62		Alpha = -8.56		Alpha = 66%		
	Beta = 60.64		Beta = 47.49		Beta = -13.15		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	12.59	0.00	8.31	0.00	-4.28	0.00	66%		
5	152.86	140.06	133.45	125.74	-19.41	-14.32	87%	90%	
10	324.00	309.97	295.27	287.63	-28.73	-22.34	91%	93%	
15	476.01	460.05	453.35	444.76	-22.66	-15.29	95%	97%	
20	610.13	591.88	593.42	582.53	-16.71	-9.35	97%	98%	
25	717.78	697.46	705.48	691.09	-12.30	-6.36	98%	99%	
30	829.86	813.33	784.60	767.55	-45.26	-45.77	95%	94%	

Female -- Issue Age 65 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 14.38		Alpha = 11.66		Alpha = -2.72		Alpha = 81%		
	Beta = 45.15		Beta = 36.97		Beta = -8.18		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	7.19	0.00	5.83	0.00	-1.36	0.00	81%		
5	133.41	127.20	109.99	104.92	-23.42	-22.28	82%	82%	
10	301.49	295.68	247.35	242.83	-54.15	-52.85	82%	82%	
15	463.41	456.50	388.18	383.85	-75.22	-72.66	84%	84%	
20	611.39	602.33	524.19	518.52	-87.20	-83.81	86%	86%	
25	732.93	721.47	642.28	634.10	-90.64	-87.37	88%	88%	
30	847.68	837.95	746.89	738.05	-100.79	-99.90	88%	88%	

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Female**



Male -- Issue Age 25 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.49		Alpha = 0.96		Alpha = -0.53		Alpha = 64%	
	Beta = 7.19		Beta = 5.99		Beta = -1.19		Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.74	0.00	0.48	0.00	-0.26	0.00	64%	
5	25.96	25.83	22.29	22.28	-3.67	-3.55	86%	86%
10	64.53	65.19	55.77	56.50	-8.75	-8.69	86%	87%
15	111.20	112.70	96.89	98.40	-14.32	-14.30	87%	87%
20	166.39	168.76	146.04	148.35	-20.35	-20.41	88%	88%
25	230.72	234.03	203.35	206.59	-27.36	-27.44	88%	88%
30	304.50	308.72	270.60	274.76	-33.91	-33.95	89%	89%
35	386.26	391.19	345.76	350.70	-40.49	-40.50	90%	90%
40	474.08	479.43	427.81	433.19	-46.27	-46.24	90%	90%
45	563.78	569.18	513.59	519.45	-50.19	-49.72	91%	91%
50	651.25	656.01	602.88	608.75	-48.37	-47.25	93%	93%
55	729.31	733.08	690.02	695.37	-39.30	-37.70	95%	95%
60	797.65	800.17	767.27	771.36	-30.38	-28.81	96%	96%
65	851.63	852.99	829.06	831.23	-22.57	-21.76	97%	97%
70	906.63	909.77	872.72	873.41	-33.91	-36.36	96%	96%

Female -- Issue Age 25 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.07		Alpha = 0.49		Alpha = -0.58		Alpha = 46%	
	Beta = 6.20		Beta = 5.08		Beta = -1.11		Beta = 82%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.53	0.00	0.24	0.00	-0.29	0.00	46%	
5	22.79	22.70	20.10	20.24	-2.69	-2.46	88%	89%
10	56.09	56.65	49.69	50.39	-6.40	-6.26	89%	89%
15	96.13	97.37	85.24	86.59	-10.90	-10.78	89%	89%
20	142.90	144.84	128.05	130.18	-14.85	-14.66	90%	90%
25	197.35	200.12	178.59	181.48	-18.76	-18.64	90%	91%
30	260.26	263.87	236.32	239.89	-23.94	-23.98	91%	91%
35	332.11	336.74	300.62	304.84	-31.49	-31.90	91%	91%
40	414.33	419.82	371.81	376.76	-42.51	-43.06	90%	90%
45	503.27	509.44	450.17	455.78	-53.10	-53.66	89%	89%
50	598.25	604.62	533.84	539.83	-64.41	-64.79	89%	89%
55	689.63	695.36	619.84	625.94	-69.78	-69.42	90%	90%
60	772.93	777.44	702.99	708.30	-69.94	-69.14	91%	91%
65	841.22	844.36	775.24	779.00	-65.98	-65.36	92%	92%
70	905.44	909.51	838.81	842.10	-66.62	-67.41	93%	93%

Male -- Issue Age 35 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.65		Alpha = 1.07		Alpha = -0.59		Alpha = 64%	
	Beta = 11.20		Beta = 9.36		Beta = -1.84		Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.83	0.00	0.53	0.00	-0.29	0.00	64%	
5	41.87	41.76	36.35	36.49	-5.52	-5.27	87%	87%
10	101.47	102.31	88.87	89.87	-12.59	-12.44	88%	88%
15	170.94	172.80	150.13	152.11	-20.81	-20.69	88%	88%
20	250.62	253.45	221.99	224.96	-28.64	-28.49	89%	89%
25	338.91	342.53	302.32	306.11	-36.60	-36.41	89%	89%
30	433.76	437.81	390.00	394.26	-43.76	-43.55	90%	90%
35	530.63	534.74	481.67	486.45	-48.96	-48.28	91%	91%
40	625.09	628.51	577.09	581.89	-48.01	-46.62	92%	93%
45	709.40	711.74	670.21	674.46	-39.19	-37.29	94%	95%
50	783.20	784.20	752.77	755.66	-30.43	-28.54	96%	96%
55	841.50	841.26	818.80	819.64	-22.70	-21.62	97%	97%
60	900.98	902.66	865.46	864.71	-35.52	-37.95	96%	96%

Female -- Issue Age 35 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.44		Alpha = 0.87		Alpha = -0.57		Alpha = 61%	
	Beta = 9.58		Beta = 8.00		Beta = -1.58		Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.72	0.00	0.44	0.00	-0.28	0.00	61%	
5	35.54	35.38	31.14	31.27	-4.40	-4.11	88%	88%
10	85.52	86.11	76.54	77.50	-8.98	-8.61	90%	90%
15	143.71	145.19	130.15	131.90	-13.56	-13.28	91%	91%
20	210.94	213.32	191.37	193.85	-19.57	-19.47	91%	91%
25	287.72	291.19	259.57	262.73	-28.15	-28.45	90%	90%
30	375.59	379.98	335.07	339.01	-40.52	-40.96	89%	89%
35	470.63	475.75	418.17	422.82	-52.46	-52.94	89%	89%
40	572.14	577.47	506.91	511.96	-65.23	-65.51	89%	89%
45	669.79	674.44	598.12	603.29	-71.67	-71.16	89%	89%
50	758.82	762.15	686.31	690.63	-72.51	-71.52	90%	91%
55	831.80	833.67	762.93	765.62	-68.87	-68.05	92%	92%
60	900.42	903.30	830.35	832.54	-70.07	-70.76	92%	92%

Male -- Issue Age 45 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 3.25 Beta = 18.29		Alpha = 2.28 Beta = 15.29		Alpha = -0.97 Beta = -3.01		Alpha = 70% Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.63	0.00	1.14	0.00	-0.49	0.00	70%	
5	65.40	64.69	56.52	56.29	-8.88	-8.40	86%	87%
10	155.50	155.88	136.50	137.37	-19.00	-18.51	88%	88%
15	255.33	256.60	225.90	227.69	-29.42	-28.90	88%	89%
20	362.57	364.34	323.49	325.81	-39.07	-38.53	89%	89%
25	472.10	473.93	425.53	428.42	-46.58	-45.51	90%	90%
30	578.91	579.96	531.73	534.64	-47.19	-45.32	92%	92%
35	674.23	674.07	635.37	637.67	-38.86	-36.41	94%	95%
40	757.69	756.00	727.26	728.04	-30.42	-27.96	96%	96%
45	823.63	820.54	800.75	799.26	-22.88	-21.29	97%	97%
50	891.00	890.12	852.68	849.42	-38.31	-40.69	96%	95%

Female -- Issue Age 45 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.93 Beta = 15.25		Alpha = 1.67 Beta = 12.91		Alpha = -1.26 Beta = -2.34		Alpha = 57% Beta = 85%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.46	0.00	0.84	0.00	-0.63	0.00	57%	
5	53.81	53.14	48.56	48.41	-5.26	-4.72	90%	91%
10	128.28	128.60	115.67	116.32	-12.61	-12.28	90%	90%
15	213.34	214.86	190.43	191.83	-22.91	-23.03	89%	89%
20	310.67	313.21	273.19	275.44	-37.47	-37.77	88%	88%
25	415.95	419.30	364.28	367.31	-51.66	-51.99	88%	88%
30	528.39	531.97	461.56	465.02	-66.83	-66.95	87%	87%
35	636.55	639.39	561.54	565.13	-75.01	-74.25	88%	88%
40	735.16	736.54	658.21	660.88	-76.96	-75.67	90%	90%
45	816.00	815.76	742.20	743.07	-73.80	-72.69	91%	91%
50	892.02	892.88	816.11	816.43	-75.91	-76.45	91%	91%

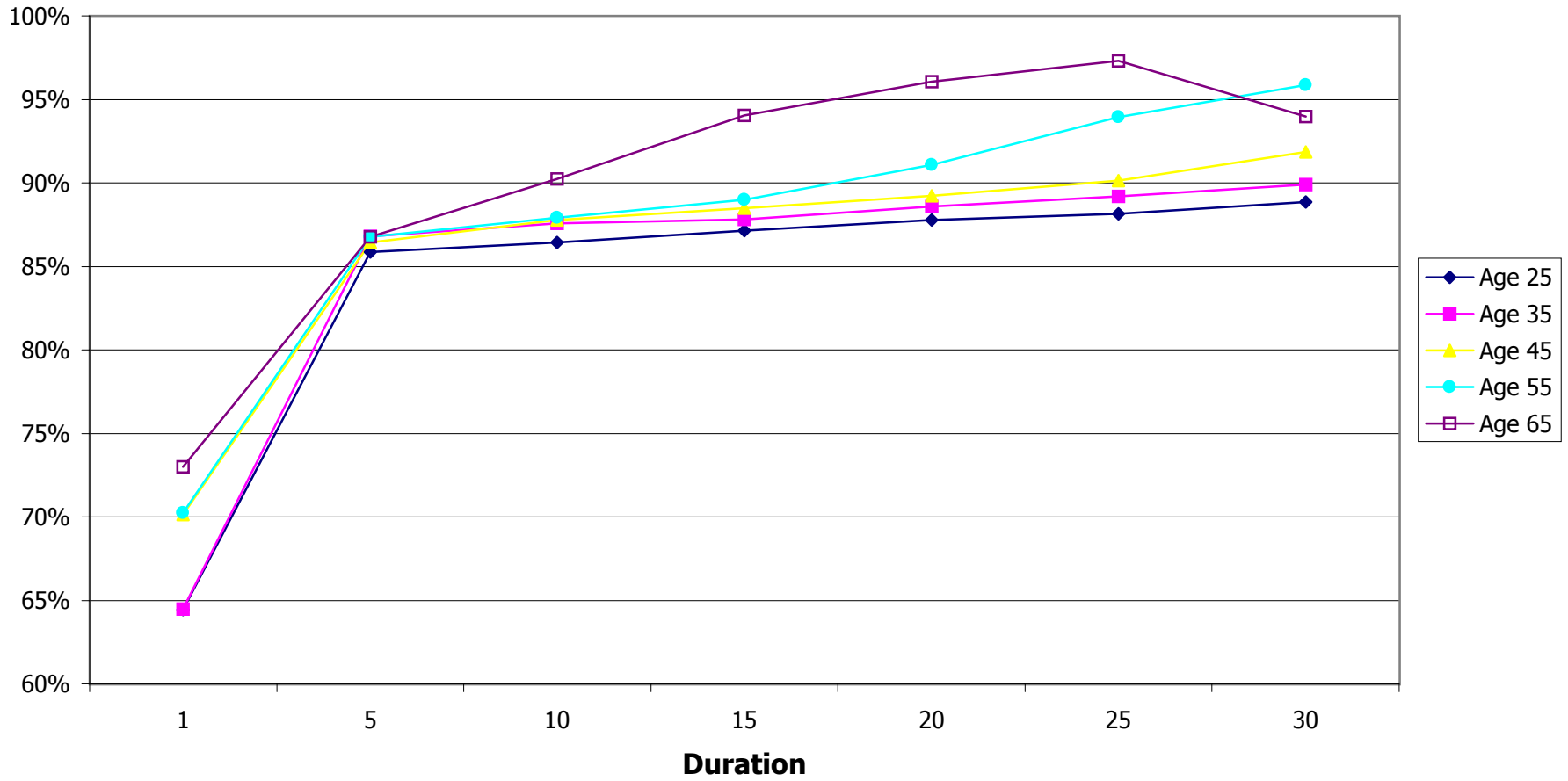
Male -- Issue Age 55 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 7.68 Beta = 31.34		Alpha = 5.40 Beta = 25.97		Alpha = -2.28 Beta = -5.37		Alpha = 70% Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.84	0.00	2.70	0.00	-1.14	0.00	70%	
5	101.60	98.56	88.16	86.34	-13.44	-12.22	87%	88%
10	231.64	229.21	203.61	202.41	-28.02	-26.80	88%	88%
15	364.45	362.09	324.32	323.80	-40.14	-38.29	89%	89%
20	493.97	490.67	449.96	449.46	-44.02	-41.20	91%	92%
25	609.56	604.79	572.57	571.35	-36.99	-33.44	94%	94%
30	710.76	704.15	681.28	678.27	-29.48	-25.88	96%	96%
35	790.76	782.45	768.23	762.51	-22.53	-19.93	97%	97%
40	872.64	867.04	829.66	821.86	-42.98	-45.18	95%	95%

Female -- Issue Age 55 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.02 Beta = 25.13		Alpha = 4.59 Beta = 21.34		Alpha = -1.43 Beta = -3.79		Alpha = 76% Beta = 85%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.01	0.00	2.29	0.00	-0.71	0.00	76%	
5	83.69	81.82	71.80	70.17	-11.89	-11.65	86%	86%
10	197.51	196.84	167.02	166.37	-30.48	-30.46	85%	85%
15	320.63	320.90	271.83	272.06	-48.80	-48.84	85%	85%
20	452.12	452.66	383.74	384.48	-68.38	-68.18	85%	85%
25	578.61	578.28	498.78	499.67	-79.83	-78.61	86%	86%
30	693.93	691.90	610.00	609.83	-83.94	-82.07	88%	88%
35	788.47	784.54	706.63	704.40	-81.84	-80.14	90%	90%
40	877.37	874.73	791.67	788.80	-85.70	-85.94	90%	90%

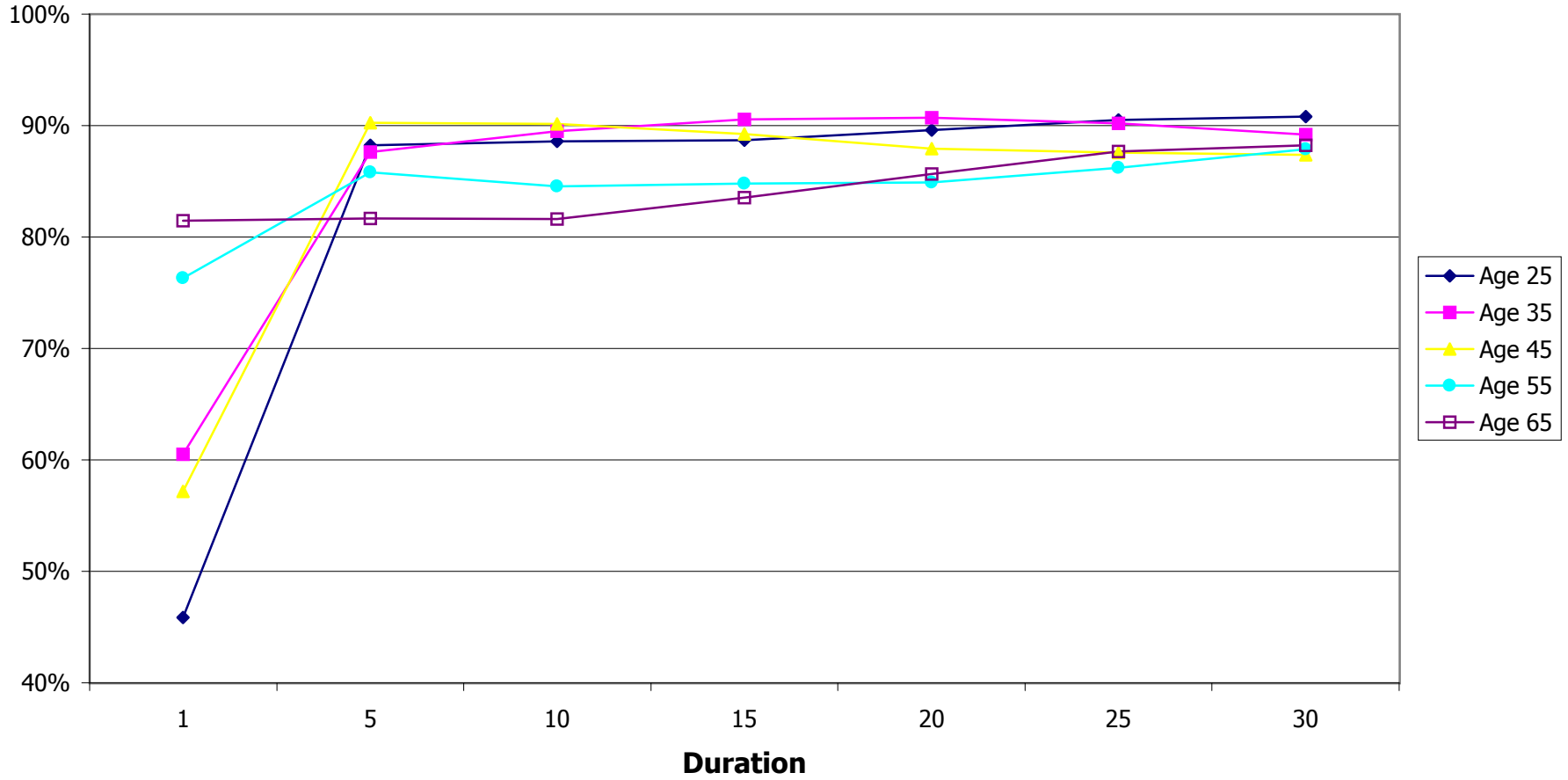
Male -- Issue Age 65 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 20.89 Beta = 56.90		Alpha = 15.25 Beta = 46.14		Alpha = -5.64 Beta = -10.77		Alpha = 73% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	10.45	0.00	7.63	0.00	-2.82	0.00	73%	
5	153.48	142.91	133.18	126.21	-20.31	-16.70	87%	88%
10	327.51	315.66	295.53	288.59	-31.98	-27.07	90%	91%
15	482.82	469.01	453.97	446.09	-28.85	-22.92	94%	95%
20	618.81	602.52	594.45	584.26	-24.36	-18.26	96%	97%
25	726.34	707.78	706.79	693.12	-19.54	-14.66	97%	98%
30	836.66	821.81	786.18	769.81	-50.48	-52.00	94%	94%

Female -- Issue Age 65 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 13.35 Beta = 44.47		Alpha = 10.87 Beta = 36.13		Alpha = -2.48 Beta = -8.34		Alpha = 81% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	6.67	0.00	5.43	0.00	-1.24	0.00	81%	
5	134.09	128.33	109.50	104.85	-24.58	-23.49	82%	82%
10	302.87	297.45	247.13	243.09	-55.74	-54.36	82%	82%
15	465.23	458.70	388.59	384.74	-76.64	-73.95	84%	84%
20	613.25	604.53	525.35	520.20	-87.90	-84.33	86%	86%
25	734.60	723.44	644.19	636.50	-90.41	-86.95	88%	88%
30	848.70	839.21	748.76	740.28	-99.94	-98.93	88%	88%

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Female**



Male -- Issue Age 25 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.10 Beta = 9.43		Alpha = 1.60 Beta = 7.92		Alpha = -0.50 Beta = -1.52		Alpha = 76% Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.05	0.00	0.80	0.00	-0.25	0.00	76%	
5	33.56	33.29	27.95	27.69	-5.60	-5.61	83%	83%
10	82.82	83.49	69.32	69.94	-13.49	-13.55	84%	84%
15	141.25	142.80	119.54	121.03	-21.71	-21.77	85%	85%
20	207.67	209.96	177.92	180.13	-29.75	-29.83	86%	86%
25	281.20	284.19	243.20	246.26	-38.00	-37.94	86%	87%
30	361.13	364.61	317.39	321.12	-43.74	-43.49	88%	88%
35	444.24	447.97	395.65	399.77	-48.59	-48.20	89%	89%
40	528.82	532.44	476.57	480.55	-52.25	-51.89	90%	90%
45	609.95	613.19	556.29	560.50	-53.67	-52.69	91%	91%
50	686.32	688.73	638.23	642.38	-48.09	-46.35	93%	93%
55	750.91	752.17	717.13	720.64	-33.78	-31.53	96%	96%
60	806.19	806.39	785.78	788.17	-20.41	-18.22	97%	98%
65	850.94	850.52	840.14	840.61	-10.80	-9.91	99%	99%
70	903.37	905.50	877.39	876.65	-25.98	-28.86	97%	97%

Female -- Issue Age 25 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.26 Beta = 7.33		Alpha = 0.75 Beta = 6.80		Alpha = -0.51 Beta = -0.53		Alpha = 60% Beta = 93%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.63	0.00	0.38	0.00	-0.25	0.00	60%	
5	26.83	26.70	26.43	26.53	-0.40	-0.17	99%	99%
10	65.60	66.17	64.77	65.54	-0.83	-0.62	99%	99%
15	111.44	112.68	110.03	111.56	-1.41	-1.12	99%	99%
20	163.09	164.87	163.70	166.10	0.61	1.22	100%	101%
25	220.95	223.43	225.44	228.53	4.49	5.10	102%	102%
30	285.71	288.84	292.47	295.96	6.76	7.13	102%	102%
35	357.61	361.63	363.04	366.87	5.43	5.24	102%	101%
40	438.84	443.56	437.23	441.45	-1.61	-2.11	100%	100%
45	524.50	529.73	515.16	519.69	-9.34	-10.04	98%	98%
50	615.21	620.47	593.80	598.13	-21.41	-22.34	97%	96%
55	700.16	704.66	669.87	673.94	-30.30	-30.72	96%	96%
60	777.29	780.63	738.81	741.54	-38.47	-39.08	95%	95%
65	840.68	842.96	793.74	794.90	-46.94	-48.06	94%	94%
70	903.76	907.44	845.21	847.12	-58.55	-60.32	94%	93%

Male -- Issue Age 35 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.58 Beta = 14.92		Alpha = 1.96 Beta = 12.32		Alpha = -0.62 Beta = -2.60		Alpha = 76% Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.29	0.00	0.98	0.00	-0.31	0.00	76%	
5	53.72	53.18	45.39	45.15	-8.33	-8.03	84%	85%
10	127.08	127.36	108.80	109.34	-18.28	-18.01	86%	86%
15	208.30	209.36	179.73	181.19	-28.58	-28.17	86%	87%
20	296.59	298.18	260.32	262.51	-36.27	-35.67	88%	88%
25	388.39	390.25	345.33	347.95	-43.05	-42.30	89%	89%
30	481.81	483.56	433.24	435.70	-48.57	-47.86	90%	90%
35	571.43	572.75	519.84	522.55	-51.59	-50.19	91%	91%
40	655.77	656.19	608.85	611.51	-46.92	-44.68	93%	93%
45	727.12	726.26	694.57	696.53	-32.55	-29.74	96%	96%
50	788.18	786.14	769.15	769.88	-19.03	-16.26	98%	98%
55	837.61	834.90	828.20	826.85	-9.41	-8.04	99%	99%
60	895.52	895.62	868.66	866.00	-26.85	-29.63	97%	97%

Female -- Issue Age 35 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.90 Beta = 11.41		Alpha = 1.50 Beta = 10.79		Alpha = -0.40 Beta = -0.62		Alpha = 79% Beta = 95%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.95	0.00	0.75	0.00	-0.20	0.00	79%	
5	41.19	40.78	40.49	40.41	-0.70	-0.36	98%	99%
10	97.02	97.20	98.45	99.32	1.43	2.12	101%	102%
15	159.57	160.50	165.14	166.75	5.57	6.25	103%	104%
20	229.57	231.21	237.54	239.59	7.97	8.37	103%	104%
25	307.30	309.90	313.75	316.17	6.45	6.27	102%	102%
30	395.11	398.47	393.89	396.72	-1.22	-1.75	100%	100%
35	487.72	491.62	478.06	481.22	-9.66	-10.40	98%	98%
40	585.78	589.71	563.00	565.94	-22.77	-23.77	96%	96%
45	677.61	680.73	645.15	647.83	-32.46	-32.89	95%	95%
50	760.99	762.85	719.62	720.85	-41.36	-42.00	95%	94%
55	829.51	830.23	778.94	778.48	-50.57	-51.76	94%	94%
60	897.71	899.94	834.54	834.88	-63.17	-65.06	93%	93%

Male -- Issue Age 45 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 6.15		Alpha = 4.48		Alpha = -1.67		Alpha = 73%		
	Beta = 24.61		Beta = 20.09		Beta = -4.52		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.08	0.00	2.24	0.00	-0.84	0.00	73%		
5	79.67	77.30	67.70	66.35	-11.97	-10.95	85%	86%	
10	182.70	180.96	159.59	159.07	-23.10	-21.88	87%	88%	
15	289.83	288.41	256.54	256.50	-33.29	-31.91	89%	89%	
20	398.86	397.30	356.78	356.56	-42.08	-40.74	89%	90%	
25	503.44	501.39	455.52	455.59	-47.92	-45.79	90%	91%	
30	601.88	598.76	557.01	557.02	-44.86	-41.74	93%	93%	
35	685.14	680.54	654.76	653.97	-30.39	-26.58	96%	96%	
40	756.40	750.43	739.79	737.61	-16.61	-12.82	98%	98%	
45	814.08	807.32	807.13	802.57	-6.95	-4.75	99%	99%	
50	881.66	878.19	853.26	847.20	-28.40	-30.99	97%	96%	

Female -- Issue Age 45 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 4.52		Alpha = 3.07		Alpha = -1.45		Alpha = 68%		
	Beta = 18.09		Beta = 17.60		Beta = -0.50		Beta = 97%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.26	0.00	1.53	0.00	-0.73	0.00	68%		
5	59.12	57.52	62.36	61.45	3.24	3.92	105%	107%	
10	137.71	136.91	143.90	143.49	6.19	6.58	104%	105%	
15	224.97	225.25	229.75	229.75	4.78	4.50	102%	102%	
20	323.56	324.68	320.01	320.48	-3.54	-4.20	99%	99%	
25	427.52	429.26	414.82	415.66	-12.70	-13.60	97%	97%	
30	537.60	539.39	510.50	511.09	-27.11	-28.30	95%	95%	
35	640.71	641.56	603.03	603.33	-37.68	-38.23	94%	94%	
40	734.31	733.76	686.91	685.57	-47.40	-48.19	94%	93%	
45	811.24	809.41	753.73	750.48	-57.51	-58.93	93%	93%	
50	887.80	887.66	816.35	814.01	-71.45	-73.65	92%	92%	

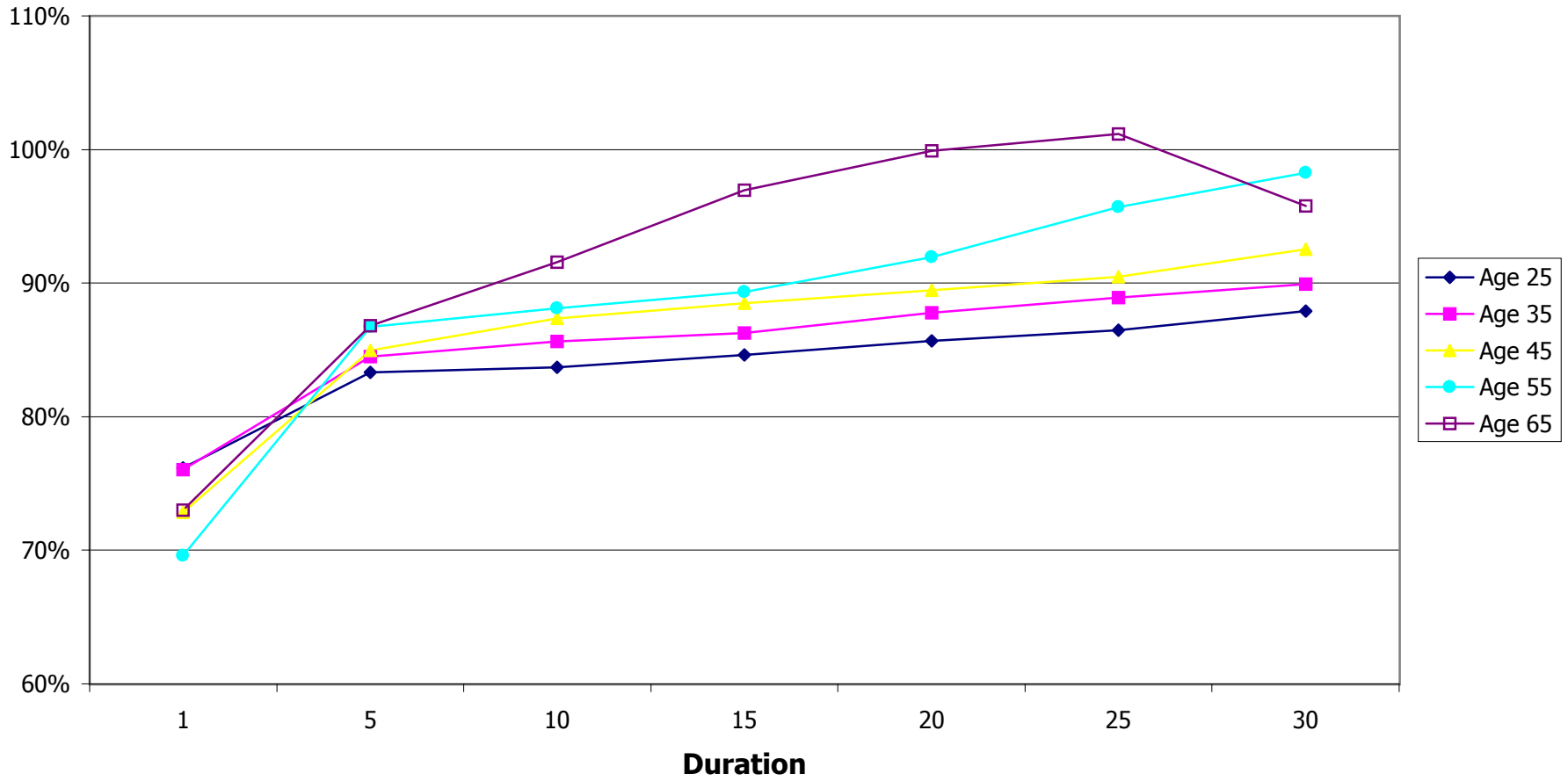
Male -- Issue Age 55 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 14.92		Alpha = 10.39		Alpha = -4.54		Alpha = 70%		
	Beta = 41.76		Beta = 33.78		Beta = -7.98		Beta = 81%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	7.46	0.00	5.19	0.00	-2.27	0.00	70%		
5	115.29	108.06	99.99	95.29	-15.30	-12.77	87%	88%	
10	251.96	244.54	221.97	217.04	-29.99	-27.51	88%	89%	
15	383.04	375.01	342.12	337.55	-40.92	-37.47	89%	90%	
20	506.43	497.07	465.63	460.97	-40.80	-36.10	92%	93%	
25	610.80	599.58	584.56	578.93	-26.24	-20.64	96%	97%	
30	700.12	687.17	688.04	680.71	-12.08	-6.46	98%	99%	
35	772.42	758.49	769.97	759.76	-2.44	1.27	100%	100%	
40	857.13	847.32	826.12	814.07	-31.01	-33.25	96%	96%	

Female -- Issue Age 55 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 9.24		Alpha = 8.92		Alpha = -0.32		Alpha = 97%		
	Beta = 29.20		Beta = 29.19		Beta = -0.01		Beta = 100%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	4.62	0.00	4.46	0.00	-0.16	0.00	97%		
5	88.10	84.52	86.69	82.57	-1.41	-1.95	98%	98%	
10	204.59	202.02	194.20	190.64	-10.40	-11.37	95%	94%	
15	327.44	325.59	307.12	304.01	-20.32	-21.58	94%	93%	
20	457.52	455.72	421.08	417.67	-36.45	-38.05	92%	92%	
25	579.35	576.45	531.29	527.53	-48.06	-48.92	92%	92%	
30	689.96	685.40	631.20	625.49	-58.76	-59.91	91%	91%	
35	780.86	774.79	710.78	702.80	-70.08	-71.99	91%	91%	
40	871.33	867.25	785.37	778.47	-85.96	-88.79	90%	90%	

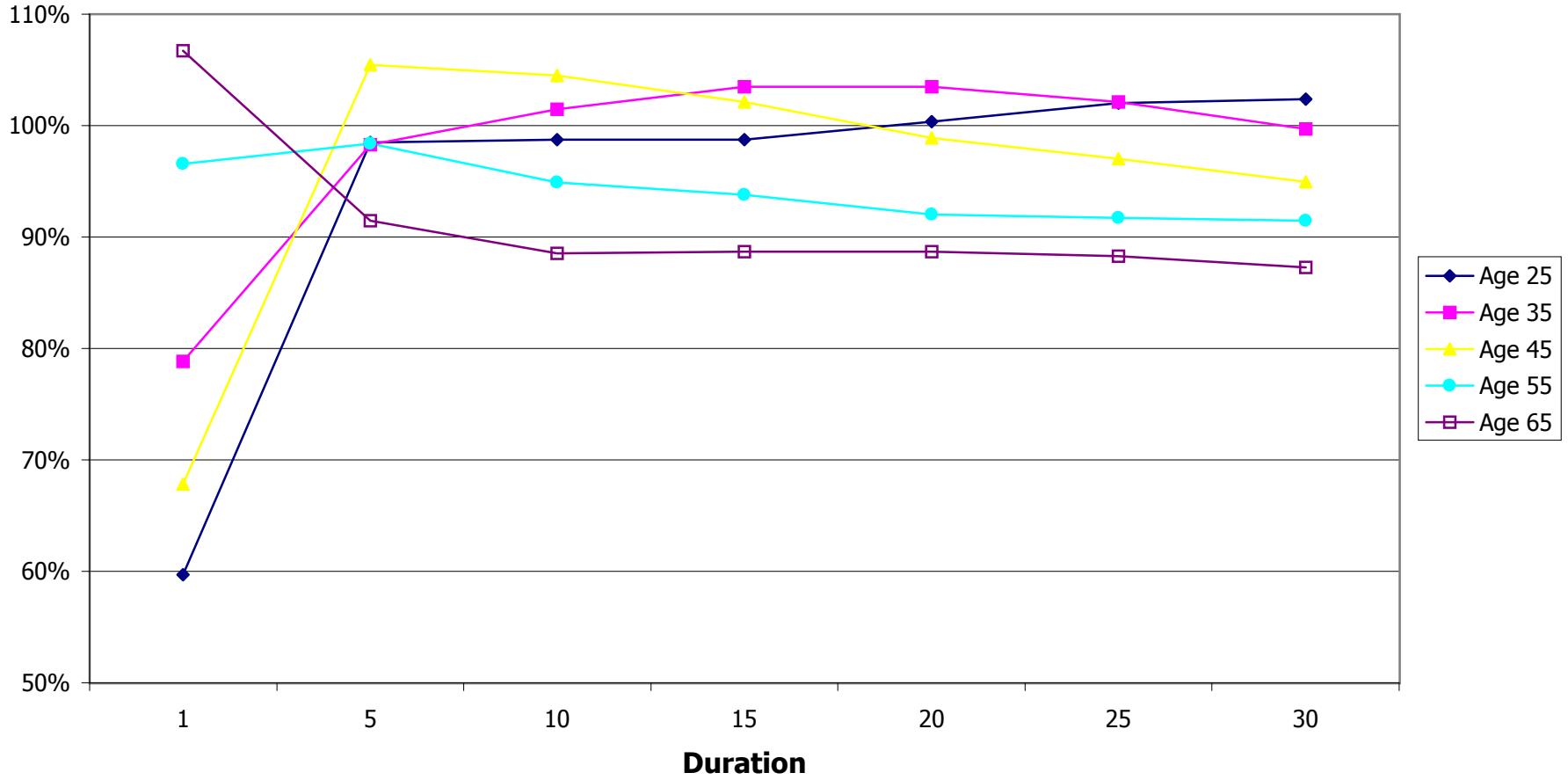
Male -- Issue Age 65 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 36.15		Alpha = 26.40		Alpha = -9.75		Alpha = 73%		
	Beta = 73.31		Beta = 58.16		Beta = -15.15		Beta = 79%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	18.08	0.00	13.20	0.00	-4.88	0.00	73%		
5	161.55	142.52	140.26	127.40	-21.28	-15.11	87%	89%	
10	330.83	309.98	302.94	289.98	-27.88	-20.00	92%	94%	
15	474.02	450.62	459.61	445.36	-14.42	-5.25	97%	99%	
20	596.57	570.80	595.91	579.43	-0.66	8.63	100%	102%	
25	695.76	668.64	703.84	683.55	8.07	14.91	101%	102%	
30	811.99	790.52	777.79	755.09	-34.20	-35.43	96%	96%	

Female -- Issue Age 65 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 18.83		Alpha = 20.10		Alpha = 1.27		Alpha = 107%		
	Beta = 50.32		Beta = 48.73		Beta = -1.58		Beta = 97%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	9.42	0.00	10.05	0.00	0.63	0.00	107%		
5	137.19	128.50	125.48	115.69	-11.71	-12.81	91%	90%	
10	305.28	296.66	270.26	260.11	-35.02	-36.55	89%	88%	
15	462.72	452.68	410.30	399.70	-52.42	-52.98	89%	88%	
20	605.64	593.46	537.24	524.16	-68.40	-69.30	89%	88%	
25	723.12	708.97	638.36	622.39	-84.76	-86.58	88%	88%	
30	840.02	828.46	733.13	718.53	-106.89	-109.93	87%	87%	

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Female**



Male -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 1.51		Alpha = 1.09		Alpha = -0.43		Alpha = 72%		
	Beta = 18.45		Beta = 15.13		Beta = -3.31		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.76	0.00	0.54	0.00	-0.21	0.00	72%		
5	70.09	69.90	59.71	59.94	-10.37	-9.97	85%	86%	
10	167.75	169.02	142.12	143.26	-25.62	-25.76	85%	85%	
15	276.05	277.93	232.93	234.92	-43.12	-43.02	84%	85%	
20	384.93	386.09	331.04	333.51	-53.89	-52.58	86%	86%	
25	488.76	489.93	435.00	438.11	-53.77	-51.82	89%	89%	
30	590.28	590.71	539.38	542.16	-50.89	-48.55	91%	92%	
35	680.44	679.73	640.98	643.15	-39.46	-36.59	94%	95%	
40	759.99	757.93	731.00	731.69	-28.99	-26.23	96%	97%	
45	823.84	820.55	803.02	801.47	-20.82	-19.08	97%	98%	
50	890.32	889.27	853.87	850.61	-36.45	-38.67	96%	96%	

Female -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 1.08		Alpha = 0.93		Alpha = -0.15		Alpha = 86%		
	Beta = 14.61		Beta = 12.87		Beta = -1.74		Beta = 88%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.54	0.00	0.46	0.00	-0.08	0.00	86%		
5	57.03	57.12	50.76	50.93	-6.27	-6.19	89%	89%	
10	135.96	137.08	120.70	121.64	-15.26	-15.44	89%	89%	
15	225.68	227.87	197.94	199.56	-27.74	-28.31	88%	88%	
20	323.70	326.26	281.34	283.54	-42.35	-42.72	87%	87%	
25	426.00	429.39	371.51	374.45	-54.49	-54.94	87%	87%	
30	535.88	539.54	467.50	470.83	-68.38	-68.71	87%	87%	
35	641.74	644.68	565.93	569.38	-75.81	-75.30	88%	88%	
40	738.48	740.02	660.98	663.51	-77.50	-76.51	90%	90%	
45	817.94	817.91	743.52	744.28	-74.42	-73.63	91%	91%	
50	892.96	894.06	816.62	816.93	-76.34	-77.12	91%	91%	

Male -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT		
	Alpha = 2.17		Alpha = 2.60		Alpha = 0.42		Alpha = 119%		
	Beta = 14.97		Beta = 15.91		Beta = 0.94		Beta = 106%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.09	0.00	1.30	0.00	0.21	0.00	119%		
5	55.56	55.37	57.82	57.42	2.26	2.05	104%	104%	
10	134.31	135.20	139.09	139.75	4.78	4.55	104%	103%	
15	222.07	223.85	229.18	230.71	7.11	6.86	103%	103%	
20	317.73	319.98	326.86	328.82	9.13	8.84	103%	103%	
25	417.45	420.28	428.16	430.64	10.70	10.37	103%	102%	
30	521.84	524.77	533.54	536.07	11.70	11.30	102%	102%	
35	624.37	626.74	636.49	638.40	12.12	11.66	102%	102%	
40	715.58	716.48	727.71	728.13	12.13	11.65	102%	102%	
45	788.67	787.28	800.69	798.83	12.02	11.55	102%	101%	
50	840.21	837.09	852.21	848.62	12.01	11.53	101%	101%	

Female -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT		
	Alpha = 1.46		Alpha = 1.83		Alpha = 0.37		Alpha = 126%		
	Beta = 12.43		Beta = 13.31		Beta = 0.88		Beta = 107%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.73	0.00	0.92	0.00	0.19	0.00	126%		
5	47.35	47.30	49.57	49.33	2.22	2.03	105%	104%	
10	112.87	113.59	117.63	118.16	4.76	4.57	104%	104%	
15	185.75	187.19	192.94	194.17	7.19	6.98	104%	104%	
20	266.43	268.71	275.83	277.88	9.41	9.17	104%	103%	
25	355.45	358.53	366.71	369.50	11.26	10.98	103%	103%	
30	450.86	454.38	463.46	466.65	12.60	12.26	103%	103%	
35	549.34	553.05	562.67	565.98	13.33	12.93	102%	102%	
40	645.01	647.83	658.47	660.85	13.47	13.02	102%	102%	
45	728.44	729.52	741.66	742.26	13.22	12.74	102%	102%	
50	802.98	803.70	815.34	815.48	12.36	11.79	102%	101%	

Male -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%									
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT		
	Alpha = 0.68		Alpha = 1.09		Alpha = 0.41		Alpha = 161%		
	Beta = 14.21		Beta = 15.13		Beta = 0.93		Beta = 107%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.34	0.00	0.54	0.00	0.21	0.00	161%		
5	57.46	57.89	59.71	59.94	2.26	2.05	104%	104%	
10	137.38	138.74	142.12	143.26	4.74	4.52	103%	103%	
15	225.89	228.12	232.93	234.92	7.05	6.80	103%	103%	
20	322.01	324.77	331.04	333.51	9.02	8.74	103%	103%	
25	424.45	427.91	435.00	438.11	10.55	10.21	102%	102%	
30	527.85	531.03	539.38	542.16	11.53	11.14	102%	102%	
35	629.03	631.65	640.98	643.15	11.94	11.50	102%	102%	
40	719.04	720.21	731.00	731.69	11.96	11.48	102%	102%	

Female -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%									
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT		
	Alpha = 0.56		Alpha = 0.93		Alpha = 0.37		Alpha = 167%		
	Beta = 11.99		Beta = 12.87		Beta = 0.88		Beta = 107%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.28	0.00	0.46	0.00	0.19	0.00	167%		
5	48.55	48.90	50.76	50.93	2.21	2.03	105%	104%	
10	115.97	117.10	120.70	121.64	4.73	4.53	104%	104%	
15	190.81	192.63	197.94	199.56	7.13	6.93	104%	104%	
20	272.02	274.45	281.34	283.54	9.32	9.09	103%	103%	
25	360.35	363.57	371.51	374.45	11.16	10.88	103%	103%	
30	455.01	458.67	467.50	470.83	12.50	12.16	103%	103%	
35	552.71	556.56	565.93	569.38	13.22	12.82	102%	102%	
40	647.62	650.59	660.98	663.51	13.36	12.91	102%	102%	

45	791.17	790.08	803.02	801.47	11.85	11.39	101%	101%
50	842.03	839.24	853.87	850.61	11.85	11.37	101%	101%

45	730.41	731.64	743.52	744.28	13.11	12.64	102%	102%
50	804.36	805.24	816.62	816.93	12.26	11.69	102%	101%

Male -- Issue Age 25 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.73 Beta = 2.21		Alpha = 1.05 Beta = 1.32		Alpha = -0.69 Beta = -0.89		Alpha = 60% Beta = 60%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.87	0.00	0.52	0.00	-0.34	0.00	60%	
2	1.37	0.54	0.78	0.24	-0.59	-0.30	57%	44%
3	1.93	1.12	0.99	0.43	-0.94	-0.69	51%	38%
4	2.53	1.74	1.19	0.63	-1.34	-1.11	47%	36%
5	3.16	2.38	1.41	0.87	-1.75	-1.51	45%	36%
6	3.81	3.03	1.66	1.12	-2.15	-1.91	43%	37%
7	4.45	3.66	1.92	1.40	-2.53	-2.26	43%	38%
8	5.06	4.26	2.21	1.69	-2.86	-2.57	44%	40%
9	5.64	4.82	2.49	1.97	-3.15	-2.84	44%	41%
10	6.17	5.31	2.77	2.24	-3.40	-3.07	45%	42%
11	6.61	5.70	3.02	2.48	-3.59	-3.22	46%	44%
12	6.95	5.99	3.24	2.67	-3.71	-3.32	47%	45%
13	7.16	6.12	3.40	2.81	-3.76	-3.32	47%	46%
14	7.21	6.08	3.49	2.84	-3.72	-3.24	48%	47%
15	7.06	5.82	3.47	2.78	-3.58	-3.04	49%	48%
16	6.67	5.32	3.35	2.60	-3.32	-2.71	50%	49%
17	6.02	4.51	3.10	2.27	-2.92	-2.24	52%	50%
18	5.05	3.39	2.68	1.76	-2.38	-1.63	53%	52%
19	3.75	1.90	2.05	1.02	-1.70	-0.88	55%	54%
20	2.05	0.00	1.17	0.00	-0.88	0.00	57%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.14 Beta = 1.72		Alpha = 0.53 Beta = 0.91		Alpha = -0.61 Beta = -0.80		Alpha = 47% Beta = 53%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.57	0.00	0.26	0.00	-0.30	0.00	47%	
2	1.15	0.58	0.65	0.38	-0.50	-0.19	57%	66%
3	1.72	1.15	1.02	0.74	-0.70	-0.41	59%	65%
4	2.29	1.71	1.37	1.09	-0.92	-0.62	60%	64%
5	2.84	2.25	1.71	1.42	-1.13	-0.84	60%	63%
6	3.37	2.77	2.04	1.74	-1.33	-1.03	60%	63%
7	3.88	3.26	2.35	2.03	-1.53	-1.23	61%	62%
8	4.35	3.73	2.62	2.30	-1.73	-1.43	60%	62%
9	4.80	4.16	2.86	2.52	-1.94	-1.64	60%	61%
10	5.21	4.53	3.06	2.69	-2.14	-1.84	59%	59%
11	5.55	4.85	3.19	2.78	-2.36	-2.07	57%	57%
12	5.82	5.07	3.25	2.81	-2.57	-2.27	56%	55%
13	5.98	5.17	3.24	2.76	-2.74	-2.41	54%	53%
14	6.00	5.12	3.16	2.64	-2.85	-2.48	53%	52%
15	5.86	4.89	3.01	2.46	-2.85	-2.42	51%	50%
16	5.52	4.43	2.79	2.20	-2.73	-2.23	51%	50%
17	4.94	3.74	2.48	1.85	-2.46	-1.89	50%	49%
18	4.11	2.77	2.07	1.38	-2.04	-1.40	50%	50%
19	3.01	1.53	1.53	0.77	-1.48	-0.76	51%	50%
20	1.63	0.00	0.84	0.00	-0.78	0.00	52%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.07 Beta = 4.36		Alpha = 1.18 Beta = 2.48		Alpha = -0.88 Beta = -1.88		Alpha = 57% Beta = 57%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.03	0.00	0.59	0.00	-0.44	0.00	57%	
2	3.32	2.27	1.88	1.28	-1.44	-0.99	57%	57%
3	5.56	4.48	3.16	2.56	-2.40	-1.92	57%	57%
4	7.73	6.62	4.42	3.80	-3.31	-2.82	57%	57%
5	9.81	8.64	5.64	5.00	-4.17	-3.65	57%	58%
6	11.77	10.53	6.81	6.13	-4.96	-4.40	58%	58%
7	13.56	12.23	7.90	7.18	-5.67	-5.05	58%	59%
8	15.17	13.75	8.89	8.11	-6.29	-5.64	59%	59%
9	16.56	15.02	9.74	8.88	-6.83	-6.14	59%	59%
10	17.70	16.03	10.41	9.45	-7.30	-6.58	59%	59%
11	18.56	16.72	10.86	9.78	-7.70	-6.94	58%	58%
12	19.08	17.08	11.07	9.87	-8.02	-7.21	58%	58%
13	19.25	17.05	11.02	9.69	-8.22	-7.35	57%	57%
14	19.00	16.59	10.76	9.34	-8.24	-7.24	57%	56%
15	18.29	15.63	10.30	8.78	-7.99	-6.85	56%	56%
16	17.05	14.11	9.61	7.95	-7.45	-6.16	56%	56%
17	15.20	11.92	8.60	6.77	-6.59	-5.14	57%	57%
18	12.60	8.93	7.19	5.12	-5.42	-3.81	57%	57%
19	9.15	5.01	5.25	2.91	-3.90	-2.10	57%	58%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.62 Beta = 3.32		Alpha = 0.95 Beta = 1.95		Alpha = -0.67 Beta = -1.37		Alpha = 59% Beta = 59%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.81	0.00	0.47	0.00	-0.33	0.00	59%	
2	2.50	1.68	1.47	0.99	-1.03	-0.69	59%	59%
3	4.15	3.30	2.44	1.94	-1.71	-1.36	59%	59%
4	5.73	4.84	3.38	2.87	-2.35	-1.97	59%	59%
5	7.22	6.27	4.30	3.78	-2.92	-2.49	60%	60%
6	8.58	7.57	5.20	4.67	-3.38	-2.90	61%	62%
7	9.80	8.70	6.06	5.51	-3.74	-3.19	62%	63%
8	10.84	9.66	6.88	6.29	-3.97	-3.37	63%	65%
9	11.71	10.44	7.62	7.00	-4.09	-3.44	65%	67%
10	12.39	11.02	8.28	7.60	-4.11	-3.41	67%	69%
11	12.86	11.38	8.82	8.09	-4.04	-3.29	69%	71%
12	13.11	11.52	9.22	8.41	-3.89	-3.11	70%	73%
13	13.13	11.41	9.44	8.52	-3.69	-2.89	72%	75%
14	12.87	11.01	9.44	8.41	-3.44	-2.61	73%	76%
15	12.31	10.29	9.18	8.00	-3.13	-2.29	75%	78%
16	11.40	9.19	8.61	7.27	-2.79	-1.92	76%	79%
17	10.10	7.68	7.69	6.17	-2.41	-1.52	76%	80%
18	8.35	5.70	6.37	4.62	-1.98	-1.08	76%	81%
19	6.09	3.15	4.58	2.58	-1.51	-0.57	75%	82%

20	4.69	0.00	2.69	0.00	-1.99	0.00	57%
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20	3.24	0.00	2.27	0.00	-0.97	0.00	70%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 4.46		Alpha = 2.60		Alpha = -1.87		Alpha = 58%	
	Beta = 10.00		Beta = 6.08		Beta = -3.92		Beta = 61%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.23	0.00	1.30	0.00	-0.93	0.00	58%	
2	7.71	5.42	4.74	3.39	-2.97	-2.03	61%	63%
3	13.07	10.71	8.07	6.67	-4.99	-4.04	62%	62%
4	18.27	15.83	11.35	9.95	-6.92	-5.89	62%	63%
5	23.29	20.75	14.61	13.19	-8.68	-7.56	63%	64%
6	28.08	25.41	17.81	16.34	-10.27	-9.07	63%	64%
7	32.56	29.72	20.89	19.35	-11.68	-10.37	64%	65%
8	36.66	33.60	23.76	22.09	-12.90	-11.51	65%	66%
9	40.26	36.93	26.34	24.51	-13.93	-12.43	65%	66%
10	43.27	39.60	28.53	26.47	-14.74	-13.13	66%	67%
11	45.56	41.51	30.21	27.86	-15.35	-13.65	66%	67%
12	47.03	42.54	31.28	28.61	-15.75	-13.93	67%	67%
13	47.57	42.61	31.67	28.64	-15.91	-13.96	67%	67%
14	47.09	41.57	31.38	28.04	-15.71	-13.54	67%	67%
15	45.44	39.30	30.40	26.68	-15.04	-12.63	67%	68%
16	42.44	35.57	28.56	24.36	-13.88	-11.21	67%	68%
17	37.85	30.13	25.63	20.82	-12.22	-9.31	68%	69%
18	31.39	22.65	21.33	15.75	-10.07	-6.91	68%	70%
19	22.70	12.75	15.35	8.87	-7.35	-3.88	68%	70%
20	11.38	0.00	7.48	0.00	-3.90	0.00	66%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 3.49		Alpha = 1.83		Alpha = -1.66		Alpha = 52%	
	Beta = 6.60		Beta = 4.83		Beta = -1.77		Beta = 73%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.74	0.00	0.92	0.00	-0.83	0.00	52%	
2	4.81	3.01	3.89	2.96	-0.91	-0.06	81%	98%
3	7.77	5.92	6.81	5.83	-0.96	-0.09	88%	98%
4	10.60	8.68	9.63	8.60	-0.97	-0.08	91%	99%
5	13.28	11.27	12.33	11.22	-0.95	-0.05	93%	100%
6	15.77	13.66	14.86	13.66	-0.91	0.00	94%	100%
7	18.04	15.81	17.19	15.89	-0.84	0.08	95%	100%
8	20.04	17.67	19.28	17.84	-0.76	0.16	96%	101%
9	21.73	19.18	21.07	19.47	-0.66	0.29	97%	102%
10	23.04	20.29	22.52	20.75	-0.51	0.45	98%	102%
11	23.94	20.98	23.60	21.61	-0.34	0.63	99%	103%
12	24.40	21.22	24.22	21.99	-0.18	0.77	99%	104%
13	24.42	21.01	24.32	21.82	-0.09	0.82	100%	104%
14	23.97	20.34	23.84	21.03	-0.13	0.69	99%	103%
15	23.05	19.15	22.73	19.60	-0.31	0.45	99%	102%
16	21.56	17.36	20.95	17.46	-0.61	0.10	97%	101%
17	19.39	14.80	18.41	14.53	-0.97	-0.27	95%	98%
18	16.33	11.25	15.04	10.71	-1.29	-0.54	92%	95%
19	12.13	6.40	10.73	5.91	-1.40	-0.49	88%	92%
20	6.50	0.00	5.37	0.00	-1.13	0.00	83%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 10.30		Alpha = 6.05		Alpha = -4.24		Alpha = 59%	
	Beta = 23.54		Beta = 15.46		Beta = -8.08		Beta = 66%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	5.15	0.00	3.03	0.00	-2.12	0.00	59%	
2	18.21	12.89	12.30	9.13	-5.92	-3.76	68%	71%
3	30.95	25.46	21.28	17.97	-9.66	-7.50	69%	71%
4	43.33	37.66	30.03	26.64	-13.30	-11.02	69%	71%
5	55.30	49.40	38.57	35.05	-16.73	-14.36	70%	71%
6	66.75	60.56	46.78	43.05	-19.97	-17.51	70%	71%
7	77.54	70.98	54.47	50.42	-23.08	-20.56	70%	71%
8	87.49	80.47	61.41	56.93	-26.09	-23.54	70%	71%
9	96.39	88.77	67.38	62.38	-29.00	-26.39	70%	70%
10	103.97	95.63	72.25	66.65	-31.72	-28.98	69%	70%
11	109.99	100.80	75.87	69.63	-34.11	-31.17	69%	69%
12	114.18	104.02	78.14	71.20	-36.03	-32.82	68%	68%
13	116.28	105.00	78.98	71.30	-37.30	-33.70	68%	68%
14	115.98	103.42	78.22	69.67	-37.76	-33.75	67%	67%
15	112.89	98.83	75.66	66.18	-37.24	-32.65	67%	67%
16	106.47	90.58	70.98	60.31	-35.49	-30.26	67%	67%
17	95.97	77.82	63.71	51.64	-32.26	-26.19	66%	66%
18	80.41	59.46	53.09	39.07	-27.33	-20.39	66%	66%
19	58.53	34.07	38.31	22.08	-20.22	-11.99	65%	65%

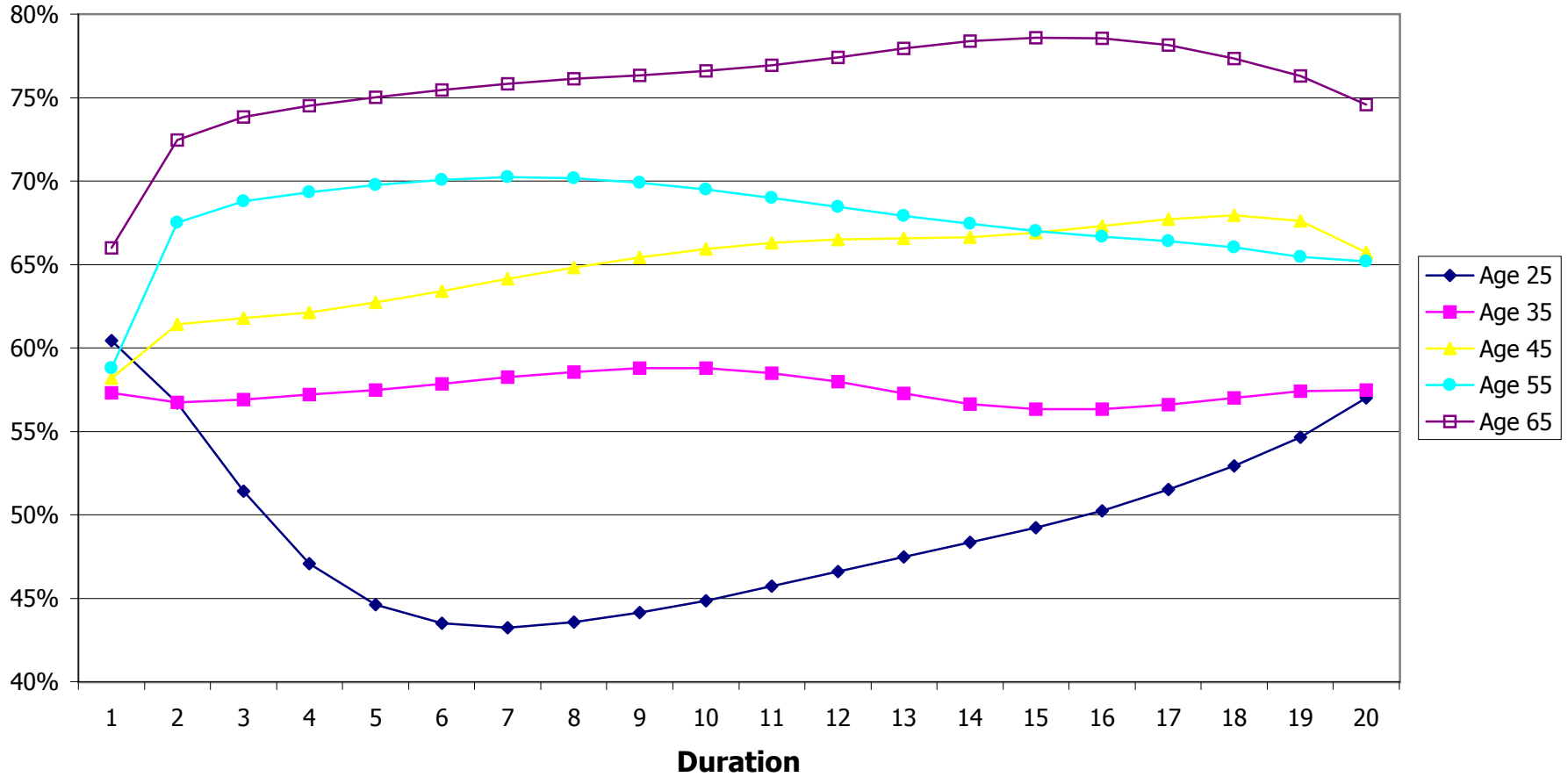
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.96		Alpha = 5.00		Alpha = -1.96		Alpha = 72%	
	Beta = 14.01		Beta = 11.33		Beta = -2.68		Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.48	0.00	2.50	0.00	-0.98	0.00	72%	
2	10.45	6.90	8.70	6.08	-1.75	-0.82	83%	88%
3	17.30	13.69	14.65	11.90	-2.65	-1.79	85%	87%
4	24.05	20.40	20.31	17.40	-3.74	-3.00	84%	85%
5	30.70	26.99	25.65	22.58	-5.05	-4.41	84%	84%
6	37.21	33.41	30.66	27.42	-6.54	-6.00	82%	82%
7	43.47	39.52	35.29	31.84	-8.18	-7.69	81%	81%
8	49.34	45.15	39.47	35.79	-9.87	-9.37	80%	79%
9	54.61	50.05	43.16	39.20	-11.45	-10.85	79%	78%
10	59.04	54.02	46.26	41.99	-12.78	-12.02	78%	78%
11	62.46	56.89	48.69	44.05	-13.77	-12.84	78%	77%
12	64.73	58.56	50.33	45.27	-14.40	-13.29	78%	77%
13	65.74	58.91	51.04	45.49	-14.69	-13.42	78%	77%
14	65.41	57.90	50.69	44.55	-14.72	-13.34	77%	77%
15	63.60	55.30	49.07	42.26	-14.54	-13.04	77%	76%
16	60.05	50.79	45.98	38.37	-14.07	-12.42	77%	76%
17	54.32	43.83	41.12	32.55	-13.20	-11.29	76%	74%
18	45.76	33.68	34.17	24.47	-11.59	-9.22	75%	73%
19	33.56	19.42	24.78	13.76	-8.78	-5.66	74%	71%

20	28.80	0.00	18.77	0.00	-10.03	0.00	65%	20	16.72	0.00	12.55	0.00	-4.17	0.00	75%
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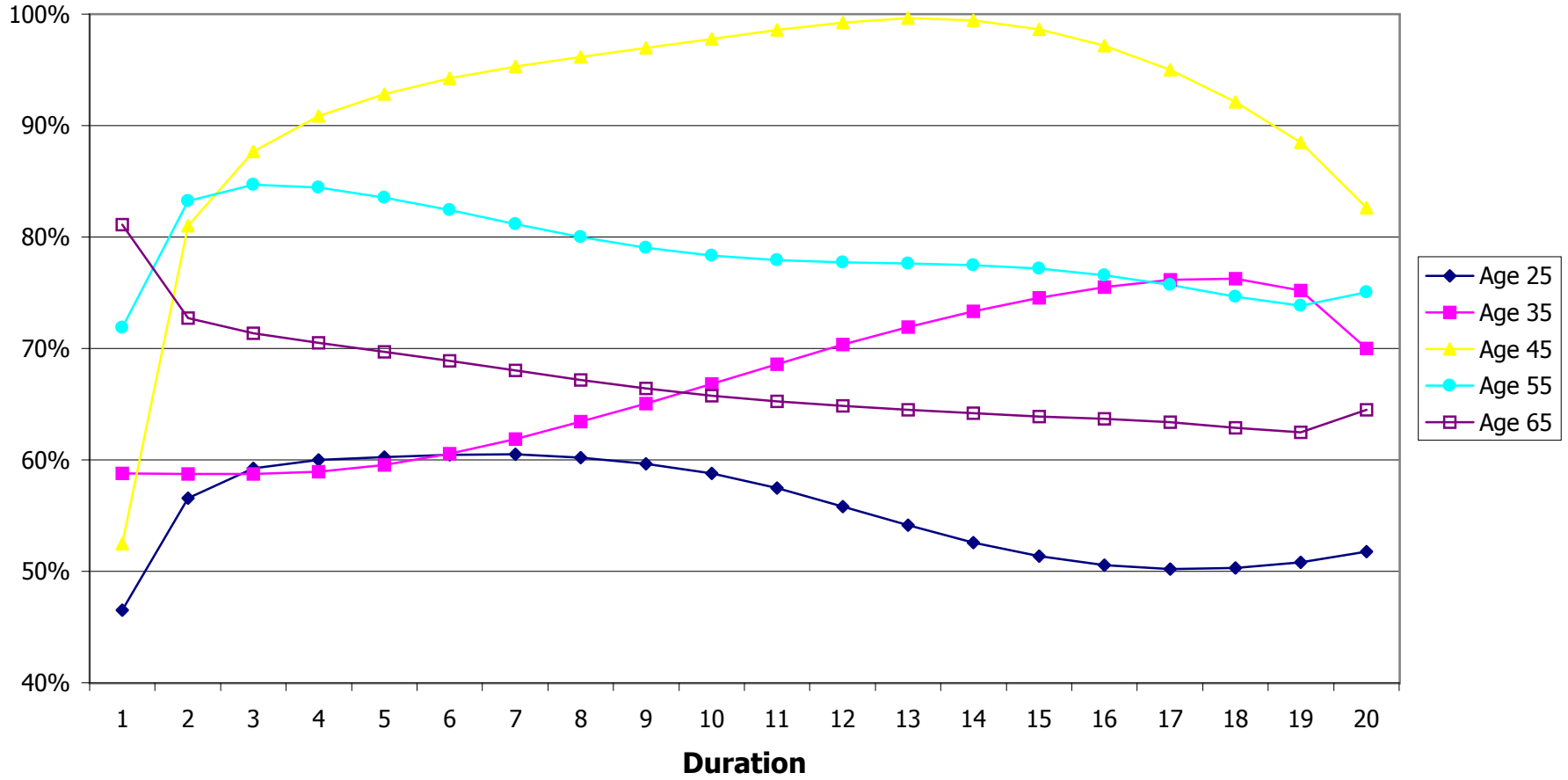
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 25.19		Alpha = 16.62		Alpha = -8.56		Alpha = 66%	
	Beta = 53.86		Beta = 38.16		Beta = -15.70		Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	12.59	0.00	8.31	0.00	-4.28	0.00	66%	
2	40.83	27.81	29.59	21.02	-11.24	-6.79	72%	76%
3	68.36	55.05	50.46	41.75	-17.89	-13.30	74%	76%
4	95.28	81.66	71.00	62.09	-24.29	-19.57	75%	76%
5	121.52	107.52	91.16	82.07	-30.36	-25.45	75%	76%
6	146.88	132.37	110.81	101.40	-36.06	-30.98	75%	77%
7	171.06	155.89	129.72	119.88	-41.34	-36.01	76%	77%
8	193.68	177.60	147.42	136.79	-46.26	-40.81	76%	77%
9	214.21	196.96	163.49	152.01	-50.73	-44.95	76%	77%
10	232.12	213.41	177.76	165.35	-54.36	-48.07	77%	77%
11	246.84	226.41	189.94	176.38	-56.90	-50.03	77%	78%
12	257.84	235.41	199.62	184.69	-58.23	-50.73	77%	78%
13	264.53	239.79	206.15	189.46	-58.38	-50.33	78%	79%
14	266.21	238.78	208.63	189.65	-57.58	-49.13	78%	79%
15	261.93	231.23	205.88	183.94	-56.06	-47.29	79%	80%
16	250.23	215.37	196.55	171.00	-53.68	-44.38	79%	79%
17	228.99	188.75	178.94	148.72	-50.06	-40.04	78%	79%
18	195.16	147.70	150.97	115.06	-44.19	-32.65	77%	78%
19	144.33	87.10	110.10	66.98	-34.23	-20.12	76%	77%
20	70.48	0.00	52.57	0.00	-17.91	0.00	75%	

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 14.38		Alpha = 11.66		Alpha = -2.72		Alpha = 81%	
	Beta = 35.07		Beta = 26.11		Beta = -8.96		Beta = 74%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	7.19	0.00	5.83	0.00	-1.36	0.00	81%	
2	27.70	20.32	20.15	14.19	-7.55	-6.14	73%	70%
3	47.92	40.45	34.20	28.11	-13.72	-12.35	71%	69%
4	67.99	60.46	47.95	41.67	-20.05	-18.78	71%	69%
5	87.90	80.28	61.28	54.78	-26.62	-25.49	70%	68%
6	107.54	99.73	74.08	67.28	-33.46	-32.46	69%	67%
7	126.67	118.53	86.17	78.96	-40.49	-39.57	68%	67%
8	144.91	136.21	97.35	89.64	-47.55	-46.57	67%	66%
9	161.76	152.24	107.44	99.13	-54.32	-53.11	66%	65%
10	176.69	166.07	116.22	107.19	-60.48	-58.88	66%	65%
11	189.16	177.18	123.43	113.57	-65.72	-63.61	65%	64%
12	198.64	185.04	128.81	117.94	-69.84	-67.10	65%	64%
13	204.61	189.11	131.98	119.93	-72.62	-69.18	65%	63%
14	206.46	188.74	132.55	119.07	-73.91	-69.67	64%	63%
15	203.40	182.98	130.00	114.82	-73.40	-68.16	64%	63%
16	194.25	170.45	123.72	106.51	-70.53	-63.94	64%	62%
17	177.34	149.16	112.43	92.24	-64.91	-56.92	63%	62%
18	150.30	116.37	94.49	70.64	-55.81	-45.74	63%	61%
19	109.87	68.30	68.66	40.57	-41.21	-27.72	62%	59%
20	51.68	0.00	33.34	0.00	-18.34	0.00	65%	

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Female**



Male -- Issue Age 25 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.49		Alpha = 0.96		Alpha = -0.53		Alpha = 64%	
	Beta = 1.76		Beta = 1.18		Beta = -0.57		Beta = 67%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.74	0.00	0.48	0.00	-0.26	0.00	64%	
2	1.04	0.32	0.69	0.19	-0.35	-0.13	66%	60%
3	1.38	0.68	0.86	0.34	-0.52	-0.34	62%	51%
4	1.75	1.07	1.02	0.52	-0.73	-0.55	58%	49%
5	2.16	1.48	1.21	0.73	-0.94	-0.76	56%	49%
6	2.58	1.91	1.43	0.95	-1.15	-0.96	55%	50%
7	3.00	2.34	1.67	1.20	-1.34	-1.14	55%	51%
8	3.42	2.74	1.92	1.46	-1.50	-1.29	56%	53%
9	3.81	3.12	2.17	1.69	-1.65	-1.43	57%	54%
10	4.17	3.46	2.40	1.92	-1.77	-1.53	58%	56%
11	4.47	3.72	2.62	2.13	-1.85	-1.59	59%	57%
12	4.70	3.92	2.80	2.29	-1.90	-1.63	60%	58%
13	4.85	4.02	2.94	2.41	-1.91	-1.61	61%	60%
14	4.88	4.00	3.01	2.43	-1.87	-1.56	62%	61%
15	4.79	3.83	3.00	2.38	-1.79	-1.45	63%	62%
16	4.54	3.50	2.90	2.23	-1.65	-1.27	64%	64%
17	4.12	2.97	2.68	1.96	-1.43	-1.02	65%	66%
18	3.48	2.24	2.32	1.51	-1.16	-0.73	67%	68%
19	2.62	1.25	1.78	0.87	-0.84	-0.38	68%	70%
20	1.50	0.00	1.03	0.00	-0.48	0.00	68%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.07		Alpha = 0.49		Alpha = -0.58		Alpha = 46%	
	Beta = 1.53		Beta = 0.85		Beta = -0.68		Beta = 55%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.53	0.00	0.24	0.00	-0.29	0.00	46%	
2	0.99	0.45	0.59	0.34	-0.39	-0.11	60%	76%
3	1.44	0.90	0.93	0.66	-0.51	-0.24	64%	73%
4	1.88	1.34	1.24	0.98	-0.64	-0.36	66%	73%
5	2.32	1.77	1.55	1.28	-0.76	-0.49	67%	72%
6	2.73	2.18	1.85	1.57	-0.89	-0.61	67%	72%
7	3.14	2.57	2.12	1.83	-1.02	-0.74	68%	71%
8	3.52	2.95	2.37	2.06	-1.15	-0.89	67%	70%
9	3.88	3.30	2.58	2.26	-1.30	-1.03	67%	69%
10	4.21	3.59	2.76	2.41	-1.45	-1.18	66%	67%
11	4.48	3.85	2.88	2.50	-1.61	-1.35	64%	65%
12	4.70	4.03	2.93	2.53	-1.77	-1.50	62%	63%
13	4.83	4.10	2.92	2.47	-1.91	-1.63	61%	60%
14	4.84	4.06	2.85	2.38	-1.99	-1.68	59%	59%
15	4.73	3.87	2.72	2.22	-2.01	-1.65	58%	57%
16	4.45	3.52	2.52	1.97	-1.94	-1.54	57%	56%
17	4.00	2.96	2.24	1.65	-1.77	-1.31	56%	56%
18	3.34	2.20	1.87	1.23	-1.48	-0.97	56%	56%
19	2.47	1.22	1.38	0.69	-1.09	-0.53	56%	57%
20	1.37	0.00	0.77	0.00	-0.60	0.00	56%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.65		Alpha = 1.07		Alpha = -0.59		Alpha = 64%	
	Beta = 3.25		Beta = 2.19		Beta = -1.06		Beta = 67%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.83	0.00	0.53	0.00	-0.29	0.00	64%	
2	2.42	1.59	1.66	1.12	-0.76	-0.47	68%	70%
3	3.99	3.14	2.77	2.24	-1.22	-0.90	70%	71%
4	5.51	4.64	3.87	3.31	-1.64	-1.33	70%	71%
5	6.98	6.07	4.93	4.36	-2.05	-1.71	71%	72%
6	8.36	7.41	5.96	5.36	-2.41	-2.05	71%	72%
7	9.65	8.63	6.92	6.29	-2.72	-2.34	72%	73%
8	10.81	9.73	7.79	7.11	-3.01	-2.62	72%	73%
9	11.82	10.67	8.54	7.79	-3.28	-2.88	72%	73%
10	12.68	11.44	9.14	8.30	-3.54	-3.14	72%	73%
11	13.34	11.99	9.55	8.60	-3.79	-3.39	72%	72%
12	13.77	12.29	9.75	8.69	-4.02	-3.60	71%	71%
13	13.93	12.32	9.72	8.55	-4.21	-3.77	70%	69%
14	13.80	12.03	9.50	8.25	-4.31	-3.78	69%	69%
15	13.33	11.37	9.11	7.78	-4.22	-3.60	68%	68%
16	12.47	10.31	8.51	7.04	-3.96	-3.26	68%	68%
17	11.15	8.74	7.62	6.00	-3.53	-2.73	68%	69%
18	9.28	6.56	6.36	4.53	-2.91	-2.03	69%	69%
19	6.76	3.70	4.65	2.58	-2.11	-1.12	69%	70%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.44		Alpha = 0.87		Alpha = -0.57		Alpha = 61%	
	Beta = 2.84		Beta = 1.79		Beta = -1.05		Beta = 63%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.72	0.00	0.44	0.00	-0.28	0.00	61%	
2	2.11	1.37	1.34	0.90	-0.76	-0.48	64%	65%
3	3.45	2.70	2.22	1.75	-1.24	-0.94	64%	65%
4	4.75	3.96	3.07	2.61	-1.67	-1.35	65%	66%
5	5.97	5.14	3.92	3.44	-2.05	-1.70	66%	67%
6	7.10	6.22	4.73	4.24	-2.37	-1.98	67%	68%
7	8.12	7.17	5.52	5.01	-2.60	-2.16	68%	70%
8	9.00	7.98	6.26	5.72	-2.74	-2.26	70%	72%
9	9.73	8.65	6.94	6.38	-2.79	-2.27	71%	74%
10	10.33	9.16	7.55	6.93	-2.78	-2.23	73%	76%
11	10.76	9.51	8.05	7.38	-2.71	-2.13	75%	78%
12	11.01	9.67	8.42	7.68	-2.59	-1.99	76%	79%
13	11.06	9.61	8.63	7.79	-2.44	-1.83	78%	81%
14	10.88	9.31	8.63	7.68	-2.25	-1.63	79%	82%
15	10.45	8.74	8.40	7.33	-2.05	-1.41	80%	84%
16	9.71	7.84	7.89	6.67	-1.82	-1.18	81%	85%
17	8.63	6.59	7.06	5.66	-1.58	-0.93	82%	86%
18	7.17	4.91	5.85	4.25	-1.32	-0.66	82%	87%
19	5.24	2.73	4.20	2.37	-1.03	-0.35	80%	87%

20	3.47	0.00	2.38	0.00	-1.09	0.00	69%
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20	2.78	0.00	2.08	0.00	-0.70	0.00	75%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 3.25 Beta = 7.69		Alpha = 2.28 Beta = 5.46		Alpha = -0.97 Beta = -2.23		Alpha = 70% Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.63	0.00	1.14	0.00	-0.49	0.00	70%	
2	6.03	4.36	4.28	3.10	-1.75	-1.27	71%	71%
3	10.35	8.65	7.32	6.10	-3.02	-2.55	71%	71%
4	14.58	12.82	10.32	9.10	-4.25	-3.73	71%	71%
5	18.68	16.85	13.32	12.08	-5.36	-4.77	71%	72%
6	22.62	20.70	16.25	14.97	-6.37	-5.73	72%	72%
7	26.35	24.31	19.08	17.73	-7.27	-6.58	72%	73%
8	29.79	27.58	21.72	20.25	-8.07	-7.33	73%	73%
9	32.86	30.45	24.10	22.49	-8.76	-7.96	73%	74%
10	35.48	32.81	26.14	24.34	-9.33	-8.48	74%	74%
11	37.54	34.57	27.71	25.64	-9.82	-8.93	74%	74%
12	38.93	35.61	28.73	26.36	-10.21	-9.25	74%	74%
13	39.57	35.84	29.12	26.43	-10.45	-9.42	74%	74%
14	39.35	35.16	28.89	25.90	-10.45	-9.26	73%	74%
15	38.12	33.39	28.02	24.67	-10.10	-8.72	73%	74%
16	35.71	30.34	26.33	22.54	-9.37	-7.80	74%	74%
17	31.91	25.79	23.64	19.28	-8.27	-6.51	74%	75%
18	26.47	19.46	19.66	14.59	-6.80	-4.87	74%	75%
19	19.07	10.99	14.14	8.23	-4.93	-2.76	74%	75%
20	9.34	0.00	6.84	0.00	-2.50	0.00	73%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.93 Beta = 5.78		Alpha = 1.67 Beta = 4.45		Alpha = -1.26 Beta = -1.33		Alpha = 57% Beta = 77%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.46	0.00	0.84	0.00	-0.63	0.00	57%	
2	4.28	2.78	3.60	2.74	-0.68	-0.03	84%	99%
3	7.01	5.47	6.31	5.41	-0.71	-0.05	90%	99%
4	9.64	8.04	8.93	7.98	-0.72	-0.06	93%	99%
5	12.15	10.48	11.44	10.43	-0.72	-0.05	94%	100%
6	14.51	12.75	13.80	12.71	-0.71	-0.04	95%	100%
7	16.68	14.82	15.98	14.79	-0.70	-0.03	96%	100%
8	18.62	16.63	17.93	16.61	-0.69	-0.02	96%	100%
9	20.27	18.12	19.60	18.14	-0.66	0.02	97%	100%
10	21.58	19.27	20.97	19.34	-0.62	0.07	97%	100%
11	22.53	20.01	21.98	20.16	-0.55	0.15	98%	101%
12	23.06	20.33	22.57	20.52	-0.49	0.20	98%	101%
13	23.15	20.20	22.68	20.38	-0.47	0.18	98%	101%
14	22.79	19.61	22.25	19.66	-0.55	0.05	98%	100%
15	21.96	18.52	21.23	18.34	-0.73	-0.18	97%	99%
16	20.56	16.81	19.57	16.36	-0.98	-0.46	95%	97%
17	18.47	14.35	17.22	13.63	-1.25	-0.72	93%	95%
18	15.52	10.91	14.07	10.05	-1.45	-0.86	91%	92%
19	11.45	6.22	10.03	5.55	-1.43	-0.67	88%	89%
20	6.00	0.00	5.00	0.00	-1.00	0.00	83%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 7.68 Beta = 19.90		Alpha = 5.40 Beta = 14.32		Alpha = -2.28 Beta = -5.59		Alpha = 70% Beta = 72%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	3.84	0.00	2.70	0.00	-1.14	0.00	70%	
2	15.95	11.99	11.50	8.69	-4.44	-3.30	72%	72%
3	27.82	23.75	20.07	17.13	-7.76	-6.63	72%	72%
4	39.44	35.23	28.42	25.40	-11.02	-9.82	72%	72%
5	50.71	46.30	36.58	33.44	-14.13	-12.86	72%	72%
6	61.52	56.84	44.42	41.08	-17.10	-15.76	72%	72%
7	71.74	66.73	51.78	48.15	-19.96	-18.58	72%	72%
8	81.21	75.78	58.44	54.41	-22.77	-21.36	72%	72%
9	89.72	83.75	64.21	59.69	-25.51	-24.06	72%	71%
10	97.02	90.40	68.93	63.86	-28.09	-26.54	71%	71%
11	102.88	95.46	72.48	66.80	-30.39	-28.66	70%	70%
12	107.03	98.70	74.76	68.41	-32.27	-30.29	70%	69%
13	109.21	99.81	75.66	68.60	-33.55	-31.22	69%	69%
14	109.10	98.48	75.03	67.15	-34.06	-31.33	69%	68%
15	106.32	94.26	72.68	63.89	-33.64	-30.37	68%	68%
16	100.35	86.54	68.26	58.32	-32.09	-28.22	68%	67%
17	90.18	73.93	61.30	49.98	-28.88	-23.95	68%	68%
18	75.17	56.50	51.08	37.87	-24.09	-18.64	68%	67%
19	54.40	32.39	36.80	21.43	-17.60	-10.97	68%	66%

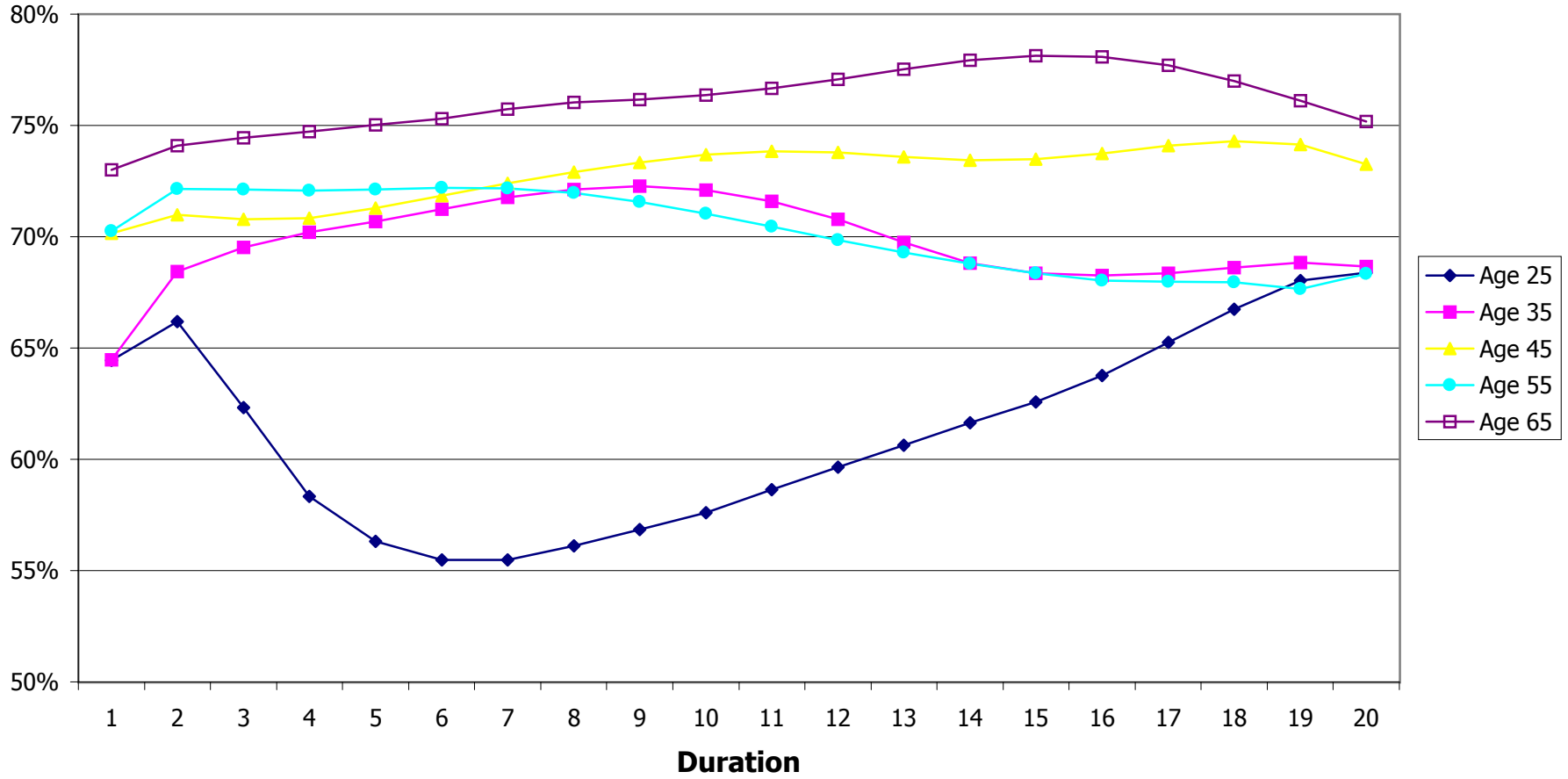
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.02 Beta = 13.08		Alpha = 4.59 Beta = 10.62		Alpha = -1.43 Beta = -2.46		Alpha = 76% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	3.01	0.00	2.29	0.00	-0.71	0.00	76%	
2	10.00	6.93	8.21	5.80	-1.80	-1.13	82%	84%
3	16.88	13.75	13.89	11.36	-2.99	-2.39	82%	83%
4	23.65	20.48	19.30	16.63	-4.35	-3.85	82%	81%
5	30.32	27.09	24.43	21.61	-5.89	-5.48	81%	80%
6	36.84	33.50	29.25	26.27	-7.59	-7.24	79%	78%
7	43.10	39.61	33.71	30.53	-9.39	-9.08	78%	77%
8	48.97	45.24	37.74	34.34	-11.22	-10.91	77%	76%
9	54.24	50.17	41.30	37.64	-12.95	-12.53	76%	75%
10	58.70	54.17	44.30	40.35	-14.40	-13.81	75%	74%
11	62.17	57.10	46.67	42.37	-15.50	-14.73	75%	74%
12	64.49	58.81	48.28	43.57	-16.21	-15.24	75%	74%
13	65.55	59.20	49.00	43.81	-16.55	-15.39	75%	74%
14	65.24	58.19	48.67	42.92	-16.56	-15.27	75%	74%
15	63.43	55.58	47.13	40.71	-16.30	-14.87	74%	73%
16	59.84	51.01	44.15	36.97	-15.69	-14.04	74%	72%
17	54.04	43.98	39.48	31.38	-14.56	-12.61	73%	71%
18	45.41	33.76	32.79	23.58	-12.62	-10.17	72%	70%
19	33.14	19.44	23.73	13.27	-9.41	-6.17	72%	68%

20	26.15	0.00	17.87	0.00	-8.28	0.00	68%	20	16.26	0.00	11.94	0.00	-4.32	0.00	73%
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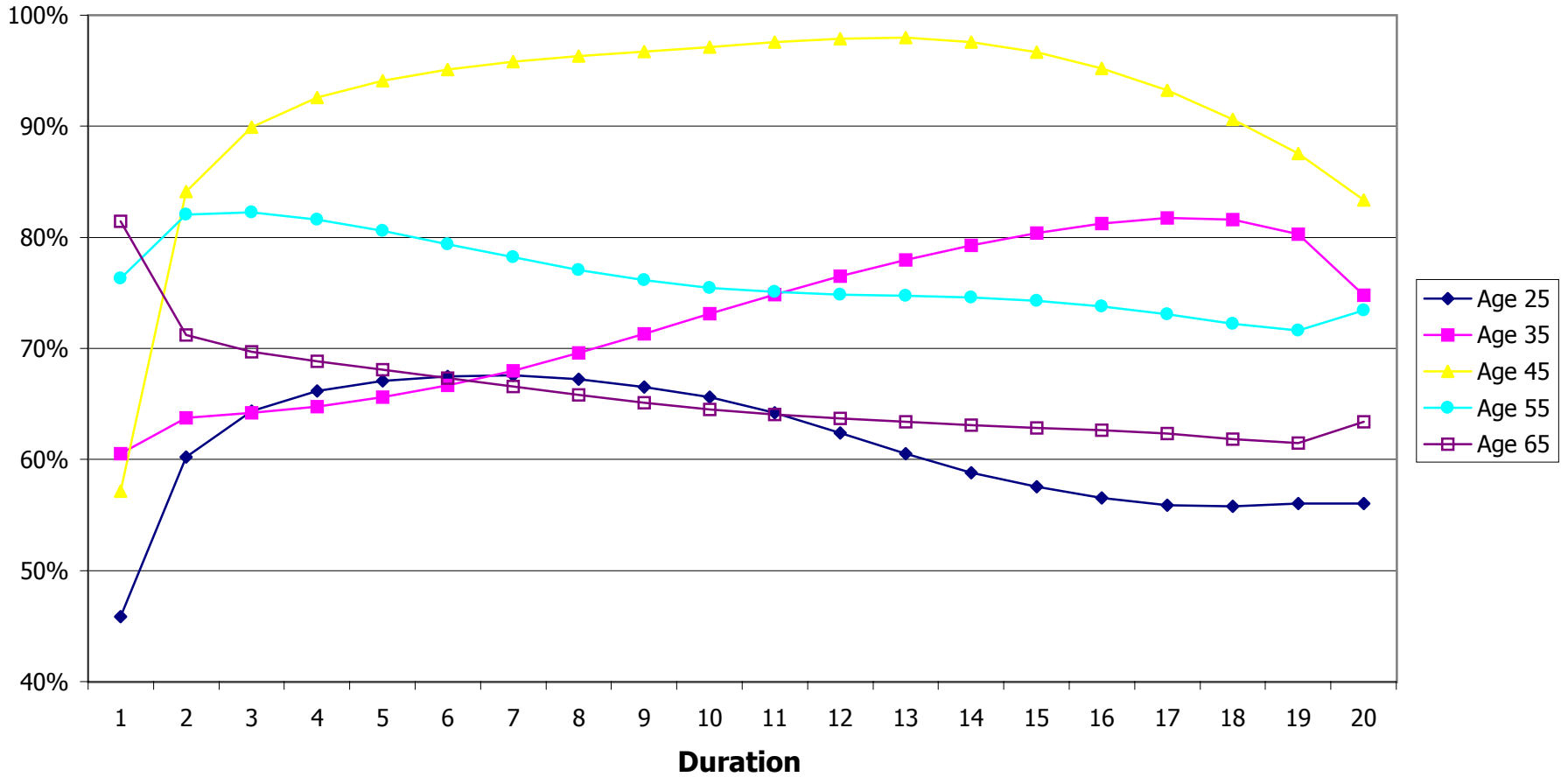
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 20.89		Alpha = 15.25		Alpha = -5.64		Alpha = 73%	
	Beta = 49.52		Beta = 36.53		Beta = -12.99		Beta = 74%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	10.45	0.00	7.63	0.00	-2.82	0.00	73%	
2	38.70	27.87	28.67	20.81	-10.02	-7.06	74%	75%
3	66.30	55.20	49.35	41.36	-16.95	-13.84	74%	75%
4	93.31	81.90	69.72	61.55	-23.59	-20.35	75%	75%
5	119.62	107.82	89.73	81.38	-29.89	-26.44	75%	75%
6	145.03	132.72	109.23	100.55	-35.80	-32.18	75%	76%
7	168.98	155.72	127.96	118.84	-41.03	-36.89	76%	76%
8	191.33	177.42	145.47	135.58	-45.86	-41.84	76%	76%
9	211.86	196.77	161.37	150.62	-50.49	-46.15	76%	77%
10	229.74	213.19	175.44	163.74	-54.30	-49.45	76%	77%
11	244.46	226.21	187.43	174.59	-57.03	-51.62	77%	77%
12	255.49	235.25	196.92	182.73	-58.57	-52.53	77%	78%
13	262.22	239.68	203.32	187.38	-58.91	-52.30	78%	78%
14	263.95	238.70	205.70	187.49	-58.25	-51.21	78%	79%
15	259.69	231.17	202.90	181.78	-56.79	-49.38	78%	79%
16	248.00	215.32	193.62	168.93	-54.38	-46.39	78%	78%
17	226.74	188.65	176.17	146.87	-50.58	-41.78	78%	78%
18	192.87	147.57	148.50	113.60	-44.37	-33.97	77%	77%
19	142.03	86.99	108.12	66.10	-33.92	-20.88	76%	76%
20	68.25	0.00	51.32	0.00	-16.93	0.00	75%	

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 13.35		Alpha = 10.87		Alpha = -2.48		Alpha = 81%	
	Beta = 34.23		Beta = 25.05		Beta = -9.18		Beta = 73%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	6.67	0.00	5.43	0.00	-1.24	0.00	81%	
2	27.37	20.51	19.49	13.93	-7.88	-6.58	71%	68%
3	47.77	40.80	33.30	27.61	-14.47	-13.19	70%	68%
4	67.98	60.92	46.80	40.94	-21.18	-19.98	69%	67%
5	87.99	80.82	59.91	53.82	-28.08	-27.00	68%	67%
6	107.67	100.30	72.49	66.12	-35.18	-34.19	67%	66%
7	126.81	119.09	84.40	77.63	-42.41	-41.46	67%	65%
8	145.03	136.74	95.42	88.16	-49.62	-48.59	66%	64%
9	161.86	152.74	105.37	97.53	-56.49	-55.21	65%	64%
10	176.75	166.54	114.05	105.52	-62.71	-61.02	65%	63%
11	189.19	177.62	121.20	111.84	-67.99	-65.78	64%	63%
12	198.65	185.45	126.54	116.18	-72.11	-69.27	64%	63%
13	204.59	189.50	129.70	118.17	-74.89	-71.33	63%	62%
14	206.41	189.09	130.27	117.32	-76.14	-71.77	63%	62%
15	203.31	183.29	127.76	113.15	-75.55	-70.14	63%	62%
16	194.11	170.70	121.58	104.95	-72.53	-65.75	63%	61%
17	177.13	149.34	110.45	90.90	-66.68	-58.44	62%	61%
18	150.02	116.47	92.77	69.59	-57.25	-46.88	62%	60%
19	109.51	68.31	67.30	39.96	-42.21	-28.35	61%	58%
20	51.27	0.00	32.51	0.00	-18.77	0.00	63%	

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Female**



Male -- Issue Age 25 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.10 Beta = 2.79		Alpha = 1.60 Beta = 2.16		Alpha = -0.50 Beta = -0.63		Alpha = 76% Beta = 77%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.05	0.00	0.80	0.00	-0.25	0.00	76%	
2	1.78	0.78	1.33	0.50	-0.46	-0.28	74%	64%
3	2.60	1.62	1.79	0.93	-0.80	-0.70	69%	57%
4	3.47	2.53	2.22	1.36	-1.25	-1.17	64%	54%
5	4.38	3.45	2.67	1.83	-1.71	-1.62	61%	53%
6	5.31	4.38	3.15	2.32	-2.15	-2.05	59%	53%
7	6.22	5.27	3.66	2.84	-2.56	-2.43	59%	54%
8	7.10	6.14	4.18	3.37	-2.92	-2.78	59%	55%
9	7.94	6.94	4.69	3.86	-3.24	-3.08	59%	56%
10	8.69	7.65	5.16	4.31	-3.52	-3.33	59%	56%
11	9.33	8.23	5.59	4.72	-3.74	-3.51	60%	57%
12	9.84	8.66	5.96	5.04	-3.88	-3.62	61%	58%
13	10.16	8.88	6.22	5.24	-3.94	-3.63	61%	59%
14	10.25	8.84	6.34	5.29	-3.91	-3.55	62%	60%
15	10.06	8.49	6.30	5.16	-3.75	-3.33	63%	61%
16	9.53	7.78	6.07	4.83	-3.46	-2.96	64%	62%
17	8.60	6.63	5.59	4.21	-3.01	-2.42	65%	63%
18	7.21	5.00	4.81	3.25	-2.40	-1.75	67%	65%
19	5.30	2.81	3.64	1.88	-1.65	-0.93	69%	67%
20	2.80	0.00	2.02	0.00	-0.78	0.00	72%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.26 Beta = 2.06		Alpha = 0.75 Beta = 1.44		Alpha = -0.51 Beta = -0.62		Alpha = 60% Beta = 70%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.63	0.00	0.38	0.00	-0.25	0.00	60%	
2	1.42	0.78	1.06	0.68	-0.36	-0.10	75%	87%
3	2.19	1.55	1.72	1.33	-0.47	-0.23	79%	85%
4	2.96	2.32	2.36	1.95	-0.61	-0.37	80%	84%
5	3.72	3.06	2.96	2.53	-0.76	-0.53	80%	83%
6	4.45	3.77	3.54	3.10	-0.91	-0.67	80%	82%
7	5.14	4.45	4.08	3.61	-1.06	-0.84	79%	81%
8	5.80	5.09	4.56	4.06	-1.24	-1.02	79%	80%
9	6.41	5.68	4.98	4.45	-1.44	-1.23	78%	78%
10	6.97	6.20	5.31	4.74	-1.65	-1.46	76%	76%
11	7.45	6.65	5.54	4.90	-1.91	-1.75	74%	74%
12	7.84	6.97	5.64	4.95	-2.20	-2.03	72%	71%
13	8.08	7.12	5.62	4.85	-2.45	-2.27	70%	68%
14	8.12	7.06	5.48	4.66	-2.64	-2.40	67%	66%
15	7.93	6.75	5.22	4.34	-2.71	-2.41	66%	64%
16	7.48	6.15	4.83	3.88	-2.65	-2.27	65%	63%
17	6.70	5.19	4.29	3.26	-2.41	-1.93	64%	63%
18	5.55	3.86	3.57	2.43	-1.98	-1.43	64%	63%
19	4.02	2.14	2.62	1.36	-1.41	-0.78	65%	64%
20	2.10	0.00	1.40	0.00	-0.70	0.00	67%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.58 Beta = 5.98		Alpha = 1.96 Beta = 4.21		Alpha = -0.62 Beta = -1.76		Alpha = 76% Beta = 70%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.29	0.00	0.98	0.00	-0.31	0.00	76%	
2	4.68	3.37	3.23	2.25	-1.45	-1.13	69%	67%
3	8.01	6.67	5.47	4.47	-2.55	-2.20	68%	67%
4	11.26	9.87	7.66	6.64	-3.60	-3.23	68%	67%
5	14.38	12.91	9.79	8.73	-4.59	-4.19	68%	68%
6	17.33	15.76	11.83	10.71	-5.50	-5.05	68%	68%
7	20.04	18.35	13.73	12.53	-6.32	-5.82	68%	68%
8	22.49	20.65	15.44	14.13	-7.05	-6.51	69%	68%
9	24.60	22.59	16.90	15.45	-7.71	-7.14	69%	68%
10	26.35	24.13	18.03	16.39	-8.32	-7.74	68%	68%
11	27.65	25.19	18.77	16.93	-8.88	-8.26	68%	67%
12	28.46	25.74	19.10	17.06	-9.35	-8.68	67%	66%
13	28.71	25.71	19.00	16.73	-9.71	-8.98	66%	65%
14	28.36	25.03	18.53	16.12	-9.83	-8.91	65%	64%
15	27.30	23.58	17.75	15.17	-9.54	-8.41	65%	64%
16	25.43	21.29	16.56	13.74	-8.87	-7.56	65%	65%
17	22.62	17.98	14.83	11.71	-7.80	-6.27	66%	65%
18	18.72	13.48	12.39	8.86	-6.33	-4.62	66%	66%
19	13.51	7.56	9.06	5.04	-4.45	-2.52	67%	67%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.90 Beta = 4.27		Alpha = 1.50 Beta = 3.30		Alpha = -0.40 Beta = -0.97		Alpha = 79% Beta = 77%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.95	0.00	0.75	0.00	-0.20	0.00	79%	
2	3.29	2.32	2.53	1.76	-0.76	-0.56	77%	76%
3	5.57	4.56	4.26	3.46	-1.31	-1.10	76%	76%
4	7.76	6.69	5.95	5.15	-1.80	-1.54	77%	77%
5	9.81	8.67	7.62	6.79	-2.19	-1.88	78%	78%
6	11.71	10.48	9.24	8.39	-2.47	-2.09	79%	80%
7	13.39	12.04	10.81	9.93	-2.58	-2.11	81%	82%
8	14.83	13.36	12.29	11.36	-2.54	-2.00	83%	85%
9	16.02	14.42	13.66	12.66	-2.36	-1.76	85%	88%
10	16.95	15.21	14.87	13.79	-2.07	-1.42	88%	91%
11	17.58	15.70	15.89	14.69	-1.70	-1.00	90%	94%
12	17.92	15.87	16.67	15.34	-1.25	-0.53	93%	97%
13	17.91	15.68	17.14	15.64	-0.77	-0.05	96%	100%
14	17.53	15.12	17.21	15.47	-0.33	0.36	98%	102%
15	16.75	14.11	16.77	14.76	0.02	0.65	100%	105%
16	15.48	12.59	15.74	13.43	0.26	0.84	102%	107%
17	13.68	10.51	14.05	11.38	0.37	0.87	103%	108%
18	11.29	7.80	11.60	8.53	0.32	0.73	103%	109%
19	8.19	4.31	8.30	4.78	0.11	0.46	101%	111%

20	6.77	0.00	4.63	0.00	-2.14	0.00	68%
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20	4.29	0.00	4.04	0.00	-0.25	0.00	94%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.15 Beta = 14.20		Alpha = 4.48 Beta = 10.10		Alpha = -1.67 Beta = -4.10		Alpha = 73% Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.08	0.00	2.24	0.00	-0.84	0.00	73%	
2	11.03	7.86	7.77	5.45	-3.26	-2.41	70%	69%
3	18.78	15.51	13.12	10.70	-5.66	-4.81	70%	69%
4	26.31	22.91	18.37	15.94	-7.94	-6.97	70%	70%
5	33.55	29.98	23.60	21.15	-9.95	-8.83	70%	71%
6	40.43	36.68	28.72	26.20	-11.70	-10.48	71%	71%
7	46.87	42.86	33.64	30.99	-13.23	-11.87	72%	72%
8	52.74	48.43	38.21	35.34	-14.53	-13.09	72%	73%
9	57.91	53.20	42.28	39.13	-15.63	-14.07	73%	74%
10	62.20	57.01	45.68	42.14	-16.52	-14.87	73%	74%
11	65.47	59.73	48.22	44.20	-17.25	-15.52	74%	74%
12	67.56	61.19	49.78	45.25	-17.78	-15.94	74%	74%
13	68.32	61.26	50.25	45.16	-18.07	-16.10	74%	74%
14	67.61	59.76	49.68	44.11	-17.93	-15.65	73%	74%
15	65.23	56.51	48.05	41.90	-17.18	-14.61	74%	74%
16	60.95	51.20	45.11	38.22	-15.84	-12.98	74%	75%
17	54.41	43.43	40.48	32.64	-13.93	-10.78	74%	75%
18	45.17	32.71	33.71	24.68	-11.46	-8.04	75%	75%
19	32.68	18.45	24.33	13.90	-8.35	-4.56	74%	75%
20	16.33	0.00	12.00	0.00	-4.33	0.00	73%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 4.52 Beta = 8.68		Alpha = 3.07 Beta = 8.36		Alpha = -1.45 Beta = -0.31		Alpha = 68% Beta = 96%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.26	0.00	1.53	0.00	-0.73	0.00	68%	
2	6.34	4.00	6.80	5.24	0.46	1.23	107%	131%
3	10.26	7.84	11.97	10.34	1.71	2.50	117%	132%
4	14.00	11.49	16.96	15.21	2.95	3.72	121%	132%
5	17.55	14.92	21.68	19.79	4.14	4.87	124%	133%
6	20.83	18.06	26.09	24.02	5.25	5.95	125%	133%
7	23.82	20.90	30.10	27.82	6.28	6.92	126%	133%
8	26.47	23.36	33.66	31.14	7.19	7.77	127%	133%
9	28.69	25.34	36.69	33.89	8.00	8.55	128%	134%
10	30.41	26.80	39.12	35.99	8.72	9.19	129%	134%
11	31.57	27.68	40.86	37.36	9.28	9.69	129%	135%
12	32.15	27.95	41.82	37.92	9.67	9.97	130%	136%
13	32.12	27.61	41.91	37.54	9.79	9.93	130%	136%
14	31.48	26.67	41.06	36.21	9.58	9.54	130%	136%
15	30.20	25.06	39.17	33.77	8.97	8.71	130%	135%
16	28.22	22.70	36.12	30.11	7.90	7.41	128%	133%
17	25.35	19.32	31.79	25.10	6.44	5.77	125%	130%
18	21.35	14.70	25.98	18.50	4.63	3.81	122%	126%
19	15.86	8.35	18.54	10.21	2.67	1.85	117%	122%
20	8.51	0.00	9.28	0.00	0.77	0.00	109%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 14.92 Beta = 32.40		Alpha = 10.39 Beta = 23.46		Alpha = -4.54 Beta = -8.94		Alpha = 70% Beta = 72%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	7.46	0.00	5.19	0.00	-2.27	0.00	70%	
2	24.65	16.89	18.01	12.56	-6.64	-4.34	73%	74%
3	41.30	33.31	30.30	24.60	-11.00	-8.72	73%	74%
4	57.44	49.17	42.22	36.38	-15.22	-12.79	73%	74%
5	73.00	64.43	53.80	47.77	-19.20	-16.66	74%	74%
6	87.87	78.92	64.88	58.53	-22.99	-20.38	74%	74%
7	101.86	92.41	75.17	68.35	-26.69	-24.06	74%	74%
8	114.72	104.63	84.33	76.85	-30.39	-27.78	74%	73%
9	126.15	115.27	92.04	83.77	-34.11	-31.50	73%	73%
10	135.82	123.98	98.11	88.98	-37.72	-35.00	72%	72%
11	143.41	130.44	102.43	92.41	-40.98	-38.02	71%	71%
12	148.60	134.36	104.94	94.02	-43.65	-40.34	71%	70%
13	151.07	135.39	105.60	93.72	-45.47	-41.67	70%	69%
14	150.47	133.16	104.22	91.26	-46.26	-41.90	69%	69%
15	146.33	127.11	100.59	86.46	-45.75	-40.66	69%	68%
16	137.96	116.42	94.28	78.64	-43.68	-37.77	68%	68%
17	124.41	100.02	84.68	67.25	-39.74	-32.77	68%	67%
18	104.43	76.44	70.76	50.81	-33.67	-25.63	68%	66%
19	76.34	43.83	51.46	28.66	-24.87	-15.17	67%	65%

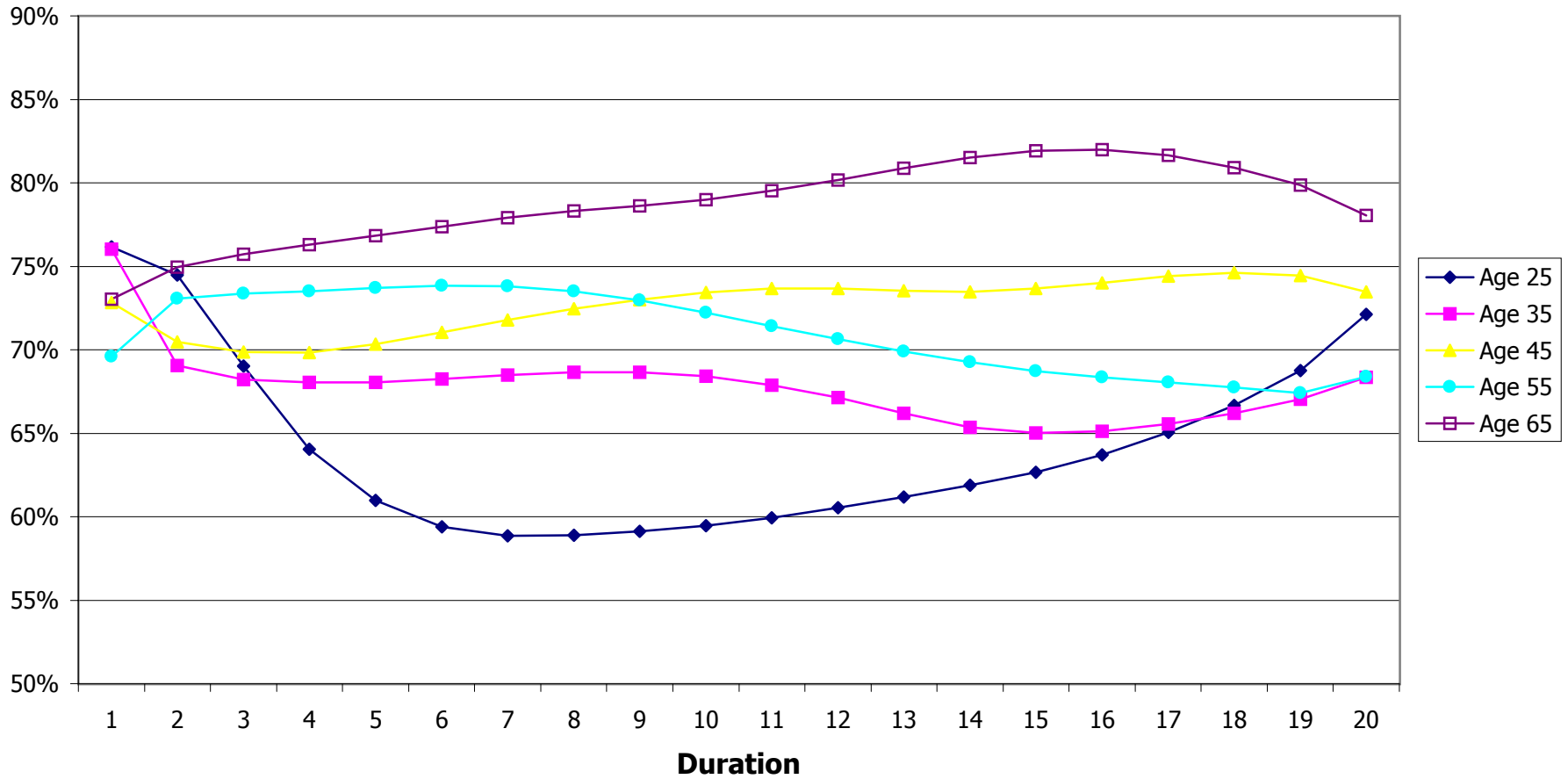
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 9.24 Beta = 17.92		Alpha = 8.92 Beta = 19.01		Alpha = -0.32 Beta = 1.09		Alpha = 97% Beta = 106%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	4.62	0.00	4.46	0.00	-0.16	0.00	97%	
2	13.18	8.44	14.33	9.66	1.15	1.21	109%	114%
3	21.54	16.72	23.77	18.87	2.23	2.15	110%	113%
4	29.76	24.87	32.77	27.66	3.01	2.79	110%	111%
5	37.84	32.89	41.29	35.92	3.45	3.03	109%	109%
6	45.75	40.70	49.25	43.59	3.50	2.89	108%	107%
7	53.37	48.11	56.60	50.61	3.24	2.49	106%	105%
8	60.49	54.95	63.22	56.82	2.73	1.87	105%	103%
9	66.85	60.83	69.01	62.19	2.16	1.36	103%	102%
10	72.15	65.55	73.90	66.60	1.75	1.05	102%	102%
11	76.17	68.87	77.75	69.89	1.58	1.02	102%	101%
12	78.76	70.72	80.40	71.90	1.64	1.17	102%	102%
13	79.79	70.94	81.63	72.35	1.84	1.41	102%	102%
14	79.22	69.57	81.17	70.98	1.95	1.40	102%	102%
15	76.90	66.31	78.73	67.48	1.83	1.16	102%	102%
16	72.56	60.89	73.96	61.43	1.39	0.54	102%	101%
17	65.68	52.55	66.36	52.28	0.68	-0.27	101%	99%
18	55.43	40.38	55.36	39.44	-0.06	-0.94	100%	98%
19	40.79	23.29	40.37	22.29	-0.42	-1.00	99%	96%

20	38.11	0.00	26.06	0.00	-12.05	0.00	68%	20	20.60	0.00	20.65	0.00	0.05	0.00	100%
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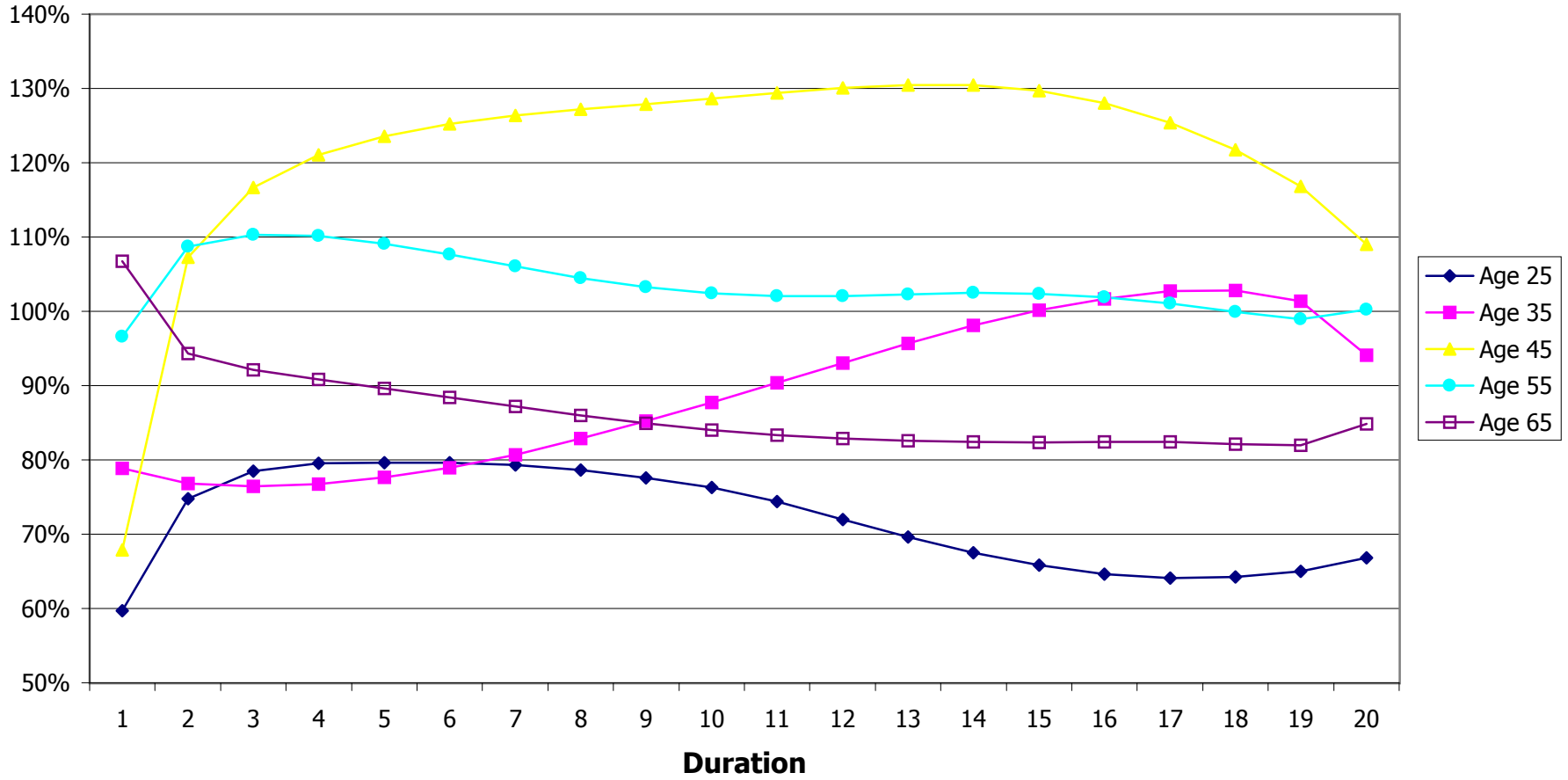
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 36.15 Beta = 68.40		Alpha = 26.40 Beta = 50.80		Alpha = -9.75 Beta = -17.60		Alpha = 73% Beta = 74%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	18.08	0.00	13.20	0.00	-4.88	0.00	73%		
2	49.62	30.84	37.20	23.59	-12.43	-7.25	75%	76%	
3	80.04	60.83	60.60	46.81	-19.44	-14.02	76%	77%	
4	109.62	90.00	83.63	69.63	-25.99	-20.36	76%	77%	
5	138.33	118.25	106.29	92.14	-32.04	-26.11	77%	78%	
6	166.00	145.34	128.45	113.96	-37.54	-31.38	77%	78%	
7	192.35	170.96	149.84	134.92	-42.51	-36.04	78%	79%	
8	216.98	194.60	169.90	154.08	-47.08	-40.52	78%	79%	
9	239.35	215.70	188.15	171.42	-51.20	-44.28	79%	79%	
10	258.90	233.71	204.54	186.85	-54.37	-46.86	79%	80%	
11	274.98	247.86	218.68	199.71	-56.30	-48.15	80%	81%	
12	286.92	257.59	230.04	209.57	-56.88	-48.02	80%	81%	
13	294.14	262.29	237.93	215.48	-56.21	-46.80	81%	82%	
14	295.95	261.20	241.25	216.22	-54.69	-44.98	82%	83%	
15	291.36	253.11	238.64	210.25	-52.72	-42.86	82%	83%	
16	278.79	236.07	228.53	196.00	-50.26	-40.07	82%	83%	
17	255.86	207.25	208.89	170.97	-46.97	-36.27	82%	82%	
18	219.09	162.54	177.25	132.73	-41.84	-29.80	81%	82%	
19	163.51	96.08	130.56	77.59	-32.95	-18.49	80%	81%	
20	82.24	0.00	64.20	0.00	-18.05	0.00	78%		

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 18.83 Beta = 41.47		Alpha = 20.10 Beta = 40.27		Alpha = 1.27 Beta = -1.20		Alpha = 107% Beta = 97%		
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	9.42	0.00	10.05	0.00	0.63	0.00	107%		
2	31.78	22.09	29.99	19.70	-1.79	-2.39	94%	89%	
3	53.70	43.84	49.48	38.98	-4.22	-4.86	92%	89%	
4	75.39	65.47	68.48	57.71	-6.91	-7.76	91%	88%	
5	96.90	86.85	86.87	75.76	-10.03	-11.10	90%	87%	
6	118.13	107.94	104.47	92.91	-13.66	-15.03	88%	86%	
7	138.83	128.25	121.03	108.88	-17.80	-19.37	87%	85%	
8	158.50	147.28	136.27	123.38	-22.23	-23.90	86%	84%	
9	176.58	164.41	149.92	136.18	-26.66	-28.23	85%	83%	
10	192.46	179.05	161.68	146.92	-30.78	-32.13	84%	82%	
11	205.58	190.65	171.33	155.46	-34.26	-35.19	83%	82%	
12	215.40	198.68	178.55	161.36	-36.85	-37.31	83%	81%	
13	221.38	202.62	182.89	164.15	-38.49	-38.47	83%	81%	
14	222.96	201.83	183.81	163.20	-39.15	-38.63	82%	81%	
15	219.33	195.35	180.62	157.77	-38.71	-37.59	82%	81%	
16	209.28	181.74	172.47	146.91	-36.81	-34.83	82%	81%	
17	191.06	158.92	157.49	127.80	-33.57	-31.12	82%	80%	
18	162.19	124.00	133.23	98.38	-28.97	-25.62	82%	79%	
19	119.26	73.05	97.76	56.86	-21.50	-16.19	82%	78%	
20	57.26	0.00	48.57	0.00	-8.69	0.00	85%		

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Female**



Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.51		Alpha = 1.09		Alpha = -0.43		Alpha = 72%	
	Beta = 7.26		Beta = 5.07		Beta = -2.20		Beta = 70%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.76	0.00	0.54	0.00	-0.21	0.00	72%	
2	6.30	5.33	4.46	3.85	-1.83	-1.47	71%	72%
3	11.44	10.29	8.26	7.60	-3.18	-2.69	72%	74%
4	16.27	14.98	11.96	11.25	-4.31	-3.73	74%	75%
5	20.90	19.55	15.53	14.74	-5.37	-4.81	74%	75%
6	25.40	23.99	18.91	18.01	-6.49	-5.98	74%	75%
7	29.77	28.29	22.02	20.97	-7.75	-7.31	74%	74%
8	33.97	32.40	24.82	23.60	-9.15	-8.80	73%	73%
9	38.01	36.36	27.27	25.86	-10.75	-10.50	72%	71%
10	41.78	39.93	29.34	27.74	-12.44	-12.19	70%	69%
11	45.01	42.83	30.95	29.10	-14.06	-13.73	69%	68%
12	47.51	44.92	31.93	29.69	-15.58	-15.23	67%	66%
13	49.01	45.84	32.17	29.59	-16.84	-16.25	66%	65%
14	49.37	45.63	31.76	28.86	-17.61	-16.78	64%	63%
15	48.50	44.11	30.66	27.39	-17.85	-16.72	63%	62%
16	46.03	40.69	28.66	24.87	-17.37	-15.82	62%	61%
17	41.55	35.16	25.49	21.06	-16.06	-14.10	61%	60%
18	34.65	26.88	20.94	15.77	-13.71	-11.12	60%	59%
19	24.80	15.46	14.82	8.80	-9.98	-6.66	60%	57%
20	11.36	0.00	6.93	0.00	-4.43	0.00	61%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.08		Alpha = 0.93		Alpha = -0.15		Alpha = 86%	
	Beta = 4.67		Beta = 4.17		Beta = -0.51		Beta = 89%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.54	0.00	0.46	0.00	-0.08	0.00	86%	
2	4.04	3.41	3.66	3.15	-0.38	-0.26	91%	92%
3	7.36	6.63	6.76	6.20	-0.60	-0.43	92%	93%
4	10.49	9.66	9.74	9.12	-0.74	-0.55	93%	94%
5	13.42	12.50	12.58	11.88	-0.84	-0.62	94%	95%
6	16.16	15.14	15.24	14.44	-0.91	-0.70	94%	95%
7	18.68	17.55	17.70	16.79	-0.98	-0.76	95%	96%
8	20.95	19.67	19.91	18.86	-1.04	-0.81	95%	96%
9	22.95	21.56	21.83	20.62	-1.13	-0.94	95%	96%
10	24.67	23.11	23.41	22.02	-1.26	-1.08	95%	95%
11	26.03	24.28	24.60	23.01	-1.43	-1.27	95%	95%
12	27.03	25.11	25.36	23.53	-1.68	-1.58	94%	94%
13	27.61	25.43	25.59	23.48	-2.02	-1.95	93%	92%
14	27.52	24.94	25.22	22.80	-2.30	-2.14	92%	91%
15	26.74	23.87	24.19	21.41	-2.56	-2.47	90%	90%
16	25.25	21.95	22.39	19.20	-2.86	-2.75	89%	87%
17	22.79	18.96	19.71	16.06	-3.08	-2.90	86%	85%
18	19.07	14.51	16.06	11.89	-3.02	-2.62	84%	82%
19	13.75	8.32	11.32	6.58	-2.44	-1.74	82%	79%
20	6.50	0.00	5.37	0.00	-1.12	0.00	83%	

Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 2.17		Alpha = 2.60		Alpha = 0.42		Alpha = 119%	
	Beta = 5.30		Beta = 6.08		Beta = 0.79		Beta = 115%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.09	0.00	1.30	0.00	0.21	0.00	119%	
2	4.17	3.04	4.74	3.39	0.57	0.35	114%	112%
3	7.16	5.98	8.07	6.67	0.91	0.69	113%	112%
4	10.10	8.93	11.35	9.95	1.25	1.02	112%	111%
5	13.04	11.86	14.61	13.19	1.56	1.32	112%	111%
6	15.95	14.73	17.81	16.34	1.86	1.61	112%	111%
7	18.75	17.47	20.89	19.35	2.14	1.88	111%	111%
8	21.37	19.98	23.76	22.09	2.39	2.11	111%	111%
9	23.74	22.20	26.34	24.51	2.60	2.30	111%	110%
10	25.76	24.01	28.53	26.47	2.77	2.46	111%	110%
11	27.30	25.29	30.21	27.86	2.91	2.57	111%	110%
12	28.28	25.98	31.28	28.61	3.00	2.64	111%	110%
13	28.64	26.00	31.67	28.64	3.03	2.64	111%	110%
14	28.39	25.47	31.38	28.04	2.99	2.57	111%	110%
15	27.51	24.26	30.40	26.68	2.89	2.42	110%	110%
16	25.86	22.18	28.56	24.36	2.70	2.18	110%	110%
17	23.23	18.98	25.63	20.82	2.41	1.84	110%	110%
18	19.32	14.37	21.33	15.75	2.00	1.38	110%	110%
19	13.89	8.10	15.35	8.87	1.47	0.77	111%	109%

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 1.46		Alpha = 1.83		Alpha = 0.37		Alpha = 126%	
	Beta = 4.15		Beta = 4.83		Beta = 0.69		Beta = 117%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.73	0.00	0.92	0.00	0.19	0.00	126%	
2	3.40	2.66	3.89	2.96	0.49	0.30	114%	111%
3	6.02	5.24	6.81	5.83	0.78	0.58	113%	111%
4	8.57	7.74	9.63	8.60	1.07	0.86	112%	111%
5	11.00	10.11	12.33	11.22	1.33	1.11	112%	111%
6	13.28	12.31	14.86	13.66	1.57	1.35	112%	111%
7	15.39	14.32	17.19	15.89	1.80	1.56	112%	111%
8	17.28	16.08	19.28	17.84	2.00	1.75	112%	111%
9	18.89	17.56	21.07	19.47	2.18	1.91	112%	111%
10	20.20	18.71	22.52	20.75	2.32	2.04	111%	111%
11	21.17	19.49	23.60	21.61	2.43	2.12	111%	111%
12	21.73	19.83	24.22	21.99	2.49	2.17	111%	111%
13	21.82	19.67	24.32	21.82	2.51	2.16	111%	111%
14	21.38	18.94	23.84	21.03	2.47	2.09	112%	111%
15	20.37	17.64	22.73	19.60	2.37	1.96	112%	111%
16	18.75	15.71	20.95	17.46	2.20	1.76	112%	111%
17	16.46	13.06	18.41	14.53	1.96	1.47	112%	111%
18	13.41	9.62	15.04	10.71	1.63	1.09	112%	111%
19	9.54	5.30	10.73	5.91	1.20	0.61	113%	112%

20	6.70	0.00	7.48	0.00	0.78	0.00	112%
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20	4.73	0.00	5.37	0.00	0.65	0.00	114%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.68		Alpha = 1.09		Alpha = 0.41		Alpha = 161%	
	Beta = 4.29		Beta = 5.07		Beta = 0.78		Beta = 118%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.34	0.00	0.54	0.00	0.21	0.00	161%	
2	3.89	3.50	4.46	3.85	0.57	0.35	115%	110%
3	7.35	6.91	8.26	7.60	0.91	0.69	112%	110%
4	10.71	10.23	11.96	11.25	1.25	1.02	112%	110%
5	13.96	13.41	15.53	14.74	1.57	1.33	111%	110%
6	17.05	16.40	18.91	18.01	1.86	1.61	111%	110%
7	19.89	19.10	22.02	20.97	2.13	1.87	111%	110%
8	22.45	21.51	24.82	23.60	2.37	2.10	111%	110%
9	24.68	23.57	27.27	25.86	2.58	2.29	110%	110%
10	26.58	25.30	29.34	27.74	2.76	2.45	110%	110%
11	28.06	26.53	30.95	29.10	2.90	2.57	110%	110%
12	28.94	27.06	31.93	29.69	2.99	2.63	110%	110%
13	29.16	26.96	32.17	29.59	3.02	2.63	110%	110%
14	28.78	26.30	31.76	28.86	2.98	2.56	110%	110%
15	27.78	24.98	30.66	27.39	2.87	2.41	110%	110%
16	25.98	22.69	28.66	24.87	2.69	2.18	110%	110%
17	23.10	19.22	25.49	21.06	2.40	1.84	110%	110%
18	18.95	14.39	20.94	15.77	1.99	1.37	111%	110%
19	13.36	8.04	14.82	8.80	1.46	0.77	111%	110%
20	6.16	0.00	6.93	0.00	0.77	0.00	113%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.56		Alpha = 0.93		Alpha = 0.37		Alpha = 167%	
	Beta = 3.48		Beta = 4.17		Beta = 0.68		Beta = 120%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.28	0.00	0.46	0.00	0.19	0.00	167%	
2	3.17	2.85	3.66	3.15	0.49	0.30	115%	110%
3	5.98	5.61	6.76	6.20	0.78	0.59	113%	110%
4	8.68	8.26	9.74	9.12	1.06	0.86	112%	110%
5	11.25	10.76	12.58	11.88	1.33	1.12	112%	110%
6	13.66	13.08	15.24	14.44	1.58	1.36	112%	110%
7	15.89	15.22	17.70	16.79	1.81	1.57	111%	110%
8	17.90	17.10	19.91	18.86	2.01	1.76	111%	110%
9	19.65	18.71	21.83	20.62	2.18	1.91	111%	110%
10	21.09	19.99	23.41	22.02	2.32	2.04	111%	110%
11	22.18	20.90	24.60	23.01	2.42	2.12	111%	110%
12	22.87	21.36	25.36	23.53	2.48	2.16	111%	110%
13	23.09	21.32	25.59	23.48	2.50	2.15	111%	110%
14	22.76	20.71	25.22	22.80	2.47	2.09	111%	110%
15	21.81	19.44	24.19	21.41	2.37	1.97	111%	110%
16	20.18	17.43	22.39	19.20	2.21	1.76	111%	110%
17	17.75	14.58	19.71	16.06	1.96	1.48	111%	110%
18	14.42	10.79	16.06	11.89	1.63	1.10	111%	110%
19	10.12	5.96	11.32	6.58	1.20	0.61	112%	110%
20	4.72	0.00	5.37	0.00	0.65	0.00	114%	

Male -- Issue Age 35 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.31	0.21	-0.10	67%
5	13.71	11.86	-1.85	87%
10	39.54	39.54	0.00	100%
15	75.45	75.45	0.00	100%
20	116.89	116.89	0.00	100%
25	166.71	166.71	0.00	100%
30	226.66	226.66	0.00	100%
35	298.15	298.15	0.00	100%
40	375.96	375.96	0.00	100%
45	471.15	471.15	0.00	100%
50	587.21	587.21	0.00	100%
55	727.70	727.70	0.00	100%
60	917.33	917.33	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.24	0.16	-0.08	65%
5	10.86	9.78	-1.08	90%
10	31.72	31.72	0.00	100%
15	59.72	59.72	0.00	100%
20	91.70	91.70	0.00	100%
25	130.80	130.80	0.00	100%
30	177.97	177.97	0.00	100%
35	236.84	236.84	0.00	100%
40	307.19	307.19	0.00	100%
45	388.84	388.84	0.00	100%
50	482.17	482.17	0.00	100%
55	584.83	584.83	0.00	100%
60	695.78	695.78	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.71	0.51	-0.20	72%
5	23.88	20.61	-3.27	86%
10	69.99	69.99	0.00	100%
15	124.35	124.35	0.00	100%
20	183.58	183.58	0.00	100%
25	253.13	253.13	0.00	100%
30	326.12	326.12	0.00	100%
35	411.69	411.69	0.00	100%
40	508.68	508.68	0.00	100%
45	619.41	619.41	0.00	100%
50	743.25	743.25	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.58	0.35	-0.23	60%
5	18.28	17.08	-1.20	93%
10	54.41	54.41	0.00	100%
15	96.30	96.30	0.00	100%
20	142.62	142.62	0.00	100%
25	199.92	199.92	0.00	100%
30	267.23	267.23	0.00	100%
35	342.98	342.98	0.00	100%
40	424.41	424.41	0.00	100%
45	503.45	503.45	0.00	100%
50	575.23	575.23	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.79	1.25	-0.54	70%
5	38.29	33.34	-4.95	87%
10	111.96	111.96	0.00	100%
15	187.65	187.65	0.00	100%
20	259.76	259.76	0.00	100%
25	341.07	341.07	0.00	100%
30	425.26	425.26	0.00	100%
35	508.20	508.20	0.00	100%
40	584.58	584.58	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.20	0.98	-0.22	82%
5	28.31	25.05	-3.26	88%
10	86.33	86.33	0.00	100%
15	149.70	149.70	0.00	100%
20	216.77	216.77	0.00	100%
25	290.38	290.38	0.00	100%
30	365.29	365.29	0.00	100%
35	426.49	426.49	0.00	100%
40	460.99	460.99	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	4.53	3.32	-1.21	73%
5	48.44	42.34	-6.10	87%
10	134.01	134.01	0.00	100%
15	224.59	224.59	0.00	100%
20	301.12	301.12	0.00	100%
25	359.58	359.58	0.00	100%
30	376.94	376.94	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.38	2.09	-0.29	88%
5	38.61	32.56	-6.05	84%
10	118.96	118.96	0.00	100%
15	199.92	199.92	0.00	100%
20	270.29	270.29	0.00	100%
25	319.29	319.29	0.00	100%
30	320.56	320.56	0.00	100%

Male -- Issue Age 35 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.27	0.17	-0.09	65%
5	12.78	11.10	-1.68	87%
10	37.43	37.43	0.00	100%
15	70.62	70.62	0.00	100%
20	108.84	108.84	0.00	100%
25	155.04	155.04	0.00	100%
30	210.85	210.85	0.00	100%
35	277.40	277.40	0.00	100%
40	349.47	349.47	0.00	100%
45	435.48	435.48	0.00	100%
50	534.91	534.91	0.00	100%
55	653.87	653.87	0.00	100%
60	820.32	820.32	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.22	0.13	-0.08	61%
5	10.11	8.89	-1.22	88%
10	29.88	29.88	0.00	100%
15	55.72	55.72	0.00	100%
20	85.08	85.08	0.00	100%
25	121.14	121.14	0.00	100%
30	164.80	164.80	0.00	100%
35	219.29	219.29	0.00	100%
40	284.21	284.21	0.00	100%
45	358.62	358.62	0.00	100%
50	440.44	440.44	0.00	100%
55	522.01	522.01	0.00	100%
60	602.88	602.88	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.59	0.42	-0.18	70%
5	22.70	19.66	-3.04	87%
10	65.16	65.16	0.00	100%
15	115.37	115.37	0.00	100%
20	170.40	170.40	0.00	100%
25	235.17	235.17	0.00	100%
30	303.17	303.17	0.00	100%
35	381.52	381.52	0.00	100%
40	465.60	465.60	0.00	100%
45	551.98	551.98	0.00	100%
50	643.74	643.74	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.50	0.28	-0.21	57%
5	17.36	15.74	-1.62	91%
10	50.48	50.48	0.00	100%
15	89.08	89.08	0.00	100%
20	131.90	131.90	0.00	100%
25	184.91	184.91	0.00	100%
30	247.15	247.15	0.00	100%
35	316.62	316.62	0.00	100%
40	389.03	389.03	0.00	100%
45	451.22	451.22	0.00	100%
50	489.88	489.88	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.47	1.04	-0.43	71%
5	36.87	32.10	-4.77	87%
10	104.79	104.79	0.00	100%
15	174.93	174.93	0.00	100%
20	242.21	242.21	0.00	100%
25	317.39	317.39	0.00	100%
30	392.56	392.56	0.00	100%
35	456.70	456.70	0.00	100%
40	493.71	493.71	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.04	0.79	-0.25	76%
5	27.40	23.67	-3.73	86%
10	80.79	80.79	0.00	100%
15	139.24	139.24	0.00	100%
20	201.16	201.16	0.00	100%
25	268.88	268.88	0.00	100%
30	336.43	336.43	0.00	100%
35	386.34	386.34	0.00	100%
40	395.78	395.78	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	3.76	2.76	-1.00	73%
5	46.63	40.73	-5.90	87%
10	124.40	124.40	0.00	100%
15	207.72	207.72	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.06	1.68	-0.38	81%
5	37.28	30.84	-6.44	83%
10	110.71	110.71	0.00	100%
15	184.76	184.76	0.00	100%

20	277.29	277.29	0.00	100%	20	248.39	248.39	0.00	100%
25	326.31	326.31	0.00	100%	25	290.06	290.06	0.00	100%
30	325.39	325.39	0.00	100%	30	281.66	281.66	0.00	100%

Male -- Issue Age 35 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.54	0.41	-0.13	76%
5	19.42	16.43	-2.99	85%
10	52.52	52.52	0.00	100%
15	105.17	105.17	0.00	100%
20	166.38	166.38	0.00	100%
25	238.36	238.36	0.00	100%
30	323.77	323.77	0.00	100%
35	425.57	425.57	0.00	100%
40	538.70	538.70	0.00	100%
45	690.22	690.22	0.00	100%
50	908.46	908.46	0.00	100%
55	1181.18	1181.18	0.00	100%
60	1513.27	1513.27	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.41	0.32	-0.09	79%
5	15.48	15.24	-0.24	98%
10	43.00	43.00	0.00	100%
15	84.30	84.30	0.00	100%
20	132.35	132.35	0.00	100%
25	190.15	190.15	0.00	100%
30	258.84	258.84	0.00	100%
35	344.66	344.66	0.00	100%
40	448.35	448.35	0.00	100%
45	574.44	574.44	0.00	100%
50	738.56	738.56	0.00	100%
55	970.73	970.73	0.00	100%
60	1266.48	1266.48	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.43	1.04	-0.39	73%
5	31.14	26.52	-4.62	85%
10	99.72	99.72	0.00	100%
15	179.55	179.55	0.00	100%
20	264.55	264.55	0.00	100%
25	363.46	363.46	0.00	100%
30	467.09	467.09	0.00	100%
35	597.00	597.00	0.00	100%
40	773.33	773.33	0.00	100%
45	1033.64	1033.64	0.00	100%
50	1354.55	1354.55	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.08	0.73	-0.35	68%
5	23.96	23.96	0.00	100%
10	78.57	78.57	0.00	100%
15	140.64	140.64	0.00	100%
20	208.48	208.48	0.00	100%
25	292.10	292.10	0.00	100%
30	390.58	390.58	0.00	100%
35	504.87	504.87	0.00	100%
40	641.72	641.72	0.00	100%
45	824.27	824.27	0.00	100%
50	1099.52	1099.52	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	3.71	2.58	-1.13	70%
5	47.01	40.95	-6.06	87%
10	156.01	156.01	0.00	100%
15	265.76	265.76	0.00	100%
20	367.59	367.59	0.00	100%
25	486.53	486.53	0.00	100%
30	626.14	626.14	0.00	100%
35	824.52	824.52	0.00	100%
40	1142.78	1142.78	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.18	2.11	-0.07	97%
5	33.95	33.49	-0.46	99%
10	120.40	120.40	0.00	100%
15	214.02	214.02	0.00	100%
20	312.72	312.72	0.00	100%
25	422.40	422.40	0.00	100%
30	542.61	542.61	0.00	100%
35	673.12	673.12	0.00	100%
40	861.61	861.61	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	9.29	6.82	-2.47	73%
5	59.57	52.15	-7.42	88%
10	193.01	193.01	0.00	100%
15	328.20	328.20	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	4.33	4.61	0.28	107%
5	46.80	43.03	-3.77	92%
10	169.65	169.65	0.00	100%
15	293.03	293.03	0.00	100%

20	447.54	447.54	0.00	100%	20	404.82	404.82	0.00	100%
25	563.97	563.97	0.00	100%	25	498.81	498.81	0.00	100%
30	693.60	693.60	0.00	100%	30	559.54	559.54	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Select & Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.46	0.21	-0.25	46%
5	24.72	21.26	-3.46	86%
10	69.99	69.99	0.00	100%
15	124.35	124.35	0.00	100%
20	183.58	183.58	0.00	100%
25	253.13	253.13	0.00	100%
30	326.12	326.12	0.00	100%
35	411.69	411.69	0.00	100%
40	508.68	508.68	0.00	100%
45	619.41	619.41	0.00	100%
50	743.25	743.25	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Select & Ultimate --				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.46	0.17	-0.29	37%
5	18.67	17.47	-1.20	94%
10	54.41	54.41	0.00	100%
15	96.30	96.30	0.00	100%
20	142.62	142.62	0.00	100%
25	199.92	199.92	0.00	100%
30	267.23	267.23	0.00	100%
35	342.98	342.98	0.00	100%
40	424.41	424.41	0.00	100%
45	503.45	503.45	0.00	100%
50	575.23	575.23	0.00	100%

Appendix C

Statutory Reserve Comparisons

Male -- Issue Age 25 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		Terminal
	Alpha = 1.73		Alpha = 1.05		Alpha = -0.69		Alpha = 60%		
	Beta = 8.01		Beta = 6.26		Beta = -1.75		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.87	0.00	0.52	0.00	-0.34	0.00	60%		
5	28.62	28.41	23.05	22.99	-5.57	-5.42	81%	81%	
10	70.76	71.38	57.56	58.27	-13.19	-13.10	81%	82%	
15	121.12	122.56	99.91	101.42	-21.21	-21.14	82%	83%	
20	179.39	181.61	150.24	152.53	-29.15	-29.08	84%	84%	
25	245.69	248.73	208.48	211.67	-37.21	-37.07	85%	85%	
30	320.03	323.78	276.45	280.53	-43.58	-43.25	86%	87%	
35	400.43	404.75	351.80	356.60	-48.63	-48.15	88%	88%	
40	485.65	490.27	433.49	438.66	-52.16	-51.61	89%	89%	
45	571.87	576.49	518.21	523.81	-53.65	-52.68	91%	91%	
50	656.15	660.17	606.35	611.99	-49.80	-48.17	92%	93%	
55	731.01	734.08	692.45	697.58	-38.56	-36.51	95%	95%	
60	797.07	799.00	768.74	772.62	-28.32	-26.39	96%	97%	
65	850.08	851.00	829.78	831.75	-20.30	-19.25	98%	98%	
70	905.28	908.06	872.87	873.39	-32.41	-34.67	96%	96%	

Female -- Issue Age 25 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		Terminal
	Alpha = 1.14		Alpha = 0.53		Alpha = -0.61		Alpha = 47%		
	Beta = 6.51		Beta = 5.25		Beta = -1.26		Beta = 81%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.57	0.00	0.26	0.00	-0.30	0.00	47%		
5	23.84	23.73	20.68	20.81	-3.16	-2.91	87%	88%	
10	58.44	58.98	51.06	51.77	-7.38	-7.21	87%	88%	
15	99.72	100.91	87.44	88.80	-12.29	-12.12	88%	88%	
20	147.19	149.00	131.13	133.26	-16.06	-15.74	89%	89%	
25	201.61	204.19	182.49	185.37	-19.12	-18.82	91%	91%	
30	263.83	267.18	240.81	244.35	-23.01	-22.84	91%	91%	
35	334.55	338.91	305.35	309.48	-29.20	-29.42	91%	91%	
40	415.70	420.93	376.38	381.21	-39.32	-39.72	91%	91%	
45	503.62	509.57	454.25	459.72	-49.37	-49.84	90%	90%	
50	598.07	604.24	537.16	542.97	-60.91	-61.27	90%	90%	
55	689.05	694.61	622.17	628.09	-66.88	-66.52	90%	90%	
60	772.20	776.55	704.26	709.38	-67.94	-67.17	91%	91%	
65	840.50	843.49	775.55	779.14	-64.95	-64.35	92%	92%	
70	904.98	908.94	838.69	841.89	-66.29	-67.05	93%	93%	

Male -- Issue Age 35 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		Terminal
	Alpha = 2.07		Alpha = 1.18		Alpha = -0.88		Alpha = 57%		
	Beta = 12.51		Beta = 9.76		Beta = -2.75		Beta = 78%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.03	0.00	0.59	0.00	-0.44	0.00	57%		
5	45.59	45.26	37.55	37.64	-8.04	-7.62	82%	83%	
10	108.99	109.51	91.45	92.37	-17.54	-17.14	84%	84%	
15	181.13	182.55	153.83	155.71	-27.30	-26.83	85%	85%	
20	262.02	264.21	226.62	229.46	-35.40	-34.75	86%	87%	
25	349.51	352.31	307.32	310.93	-42.19	-41.38	88%	88%	
30	442.23	445.36	394.81	398.81	-47.42	-46.55	89%	90%	
35	536.04	539.18	485.54	490.02	-50.50	-49.16	91%	91%	
40	627.76	630.23	579.94	584.45	-47.82	-45.77	92%	93%	
45	709.21	710.65	672.15	676.11	-37.06	-34.54	95%	95%	
50	781.09	781.30	753.86	756.48	-27.23	-24.82	97%	97%	
55	838.77	837.87	819.23	819.80	-19.55	-18.07	98%	98%	
60	898.83	899.97	865.38	864.41	-33.45	-35.56	96%	96%	

Female -- Issue Age 35 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		Terminal
	Alpha = 1.62		Alpha = 0.95		Alpha = -0.67		Alpha = 59%		
	Beta = 10.06		Beta = 8.26		Beta = -1.80		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.81	0.00	0.47	0.00	-0.33	0.00	59%		
5	36.77	36.51	31.93	32.04	-4.84	-4.47	87%	88%	
10	87.63	88.04	78.34	79.27	-9.29	-8.77	89%	90%	
15	145.96	147.18	132.91	134.62	-13.05	-12.56	91%	91%	
20	212.63	214.68	194.86	197.27	-17.77	-17.41	92%	92%	
25	288.42	291.55	263.42	266.47	-25.00	-25.08	91%	91%	
30	375.38	379.44	338.87	342.66	-36.51	-36.78	90%	90%	
35	469.61	474.43	421.60	426.07	-48.01	-48.37	90%	90%	
40	570.82	575.89	509.67	514.50	-61.15	-61.39	89%	89%	
45	668.32	672.73	599.97	604.92	-68.35	-67.81	90%	90%	
50	757.43	760.54	687.18	691.27	-70.25	-69.27	91%	91%	
55	830.61	832.28	762.91	765.38	-67.71	-66.90	92%	92%	
60	899.71	902.42	829.98	832.04	-69.73	-70.38	92%	92%	

Male -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	4.46	Alpha =	2.60	Alpha =	-1.87	Alpha =	58%	
	Beta =	20.33	Beta =	15.91	Beta =	-4.42	Beta =	78%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	2.23	0.00	1.30	0.00	-0.93	0.00	58%		
5	68.90	67.49	57.82	57.42	-11.08	-10.07	84%	85%	
10	161.17	160.64	139.09	139.75	-22.08	-20.89	86%	87%	
15	260.97	261.14	229.18	230.71	-31.79	-30.43	88%	88%	
20	366.76	367.29	326.86	328.82	-39.90	-38.47	89%	90%	
25	473.77	474.32	428.16	430.64	-45.61	-43.67	90%	91%	
30	578.39	578.18	533.54	536.07	-44.85	-42.11	92%	93%	
35	671.31	669.93	636.49	638.40	-34.83	-31.53	95%	95%	
40	753.30	750.51	727.71	728.13	-25.60	-22.39	97%	97%	
45	819.11	815.05	800.69	798.83	-18.42	-16.23	98%	98%	
50	887.62	885.88	852.21	848.62	-35.41	-37.27	96%	96%	

Female -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	3.49	Alpha =	1.83	Alpha =	-1.66	Alpha =	52%	
	Beta =	15.91	Beta =	13.31	Beta =	-2.60	Beta =	84%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.74	0.00	0.92	0.00	-0.83	0.00	52%		
5	54.27	53.26	49.57	49.33	-4.70	-3.92	91%	93%	
10	128.29	128.20	117.63	118.16	-10.66	-10.04	92%	92%	
15	212.42	213.52	192.94	194.17	-19.48	-19.35	91%	91%	
20	308.96	311.10	275.83	277.88	-33.13	-33.22	89%	89%	
25	413.57	416.55	366.71	369.50	-46.85	-47.05	89%	89%	
30	525.93	529.18	463.46	466.65	-62.46	-62.53	88%	88%	
35	634.16	636.68	562.67	565.98	-71.49	-70.70	89%	89%	
40	733.08	734.17	658.47	660.85	-74.61	-73.32	90%	90%	
45	814.33	813.81	741.66	742.26	-72.67	-71.55	91%	91%	
50	891.04	891.67	815.34	815.48	-75.69	-76.19	92%	91%	

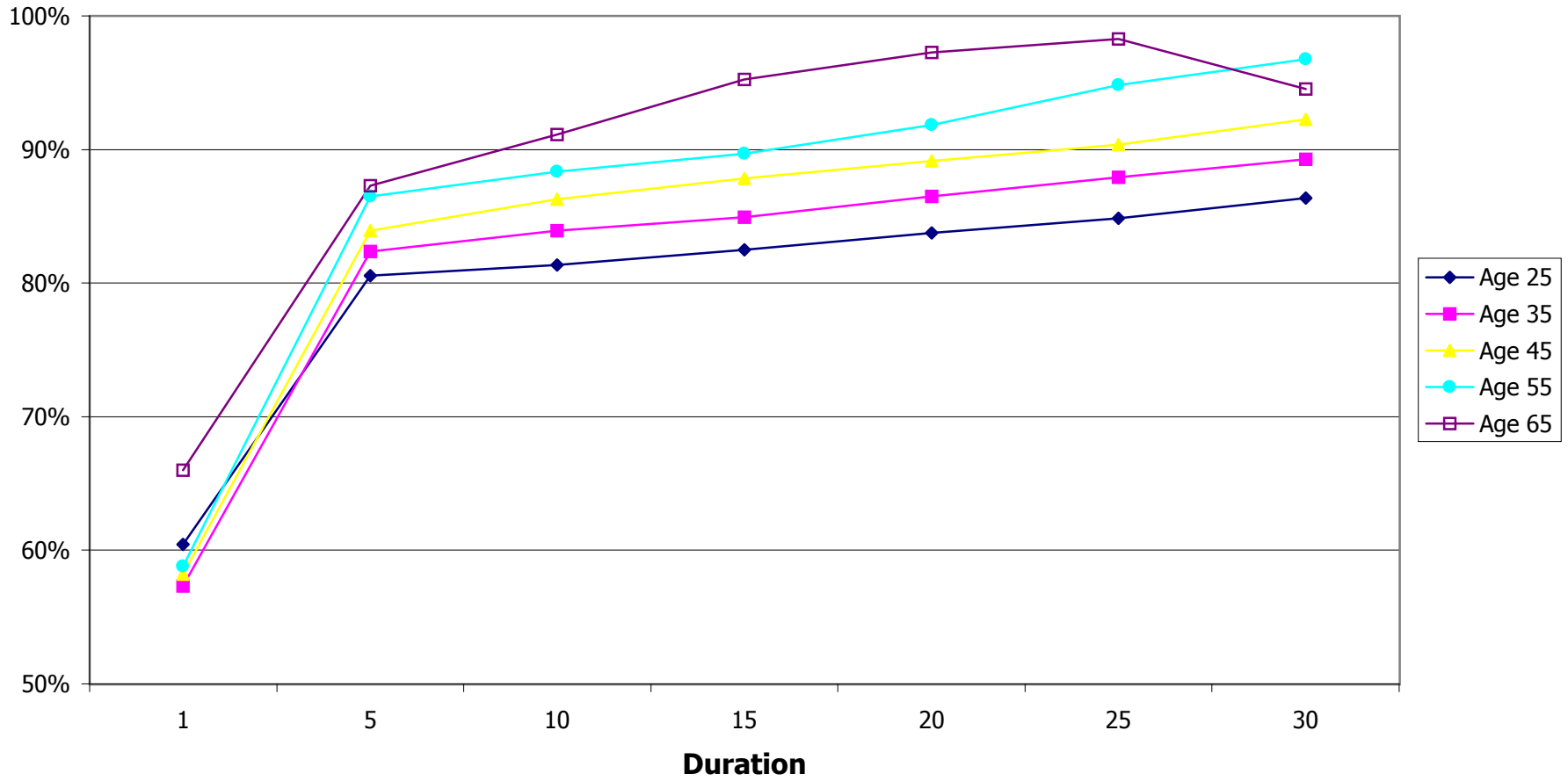
Male -- Issue Age 55 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	10.30	Alpha =	6.05	Alpha =	-4.24	Alpha =	59%	
	Beta =	34.26	Beta =	26.91	Beta =	-7.35	Beta =	79%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	5.15	0.00	3.03	0.00	-2.12	0.00	59%		
5	103.27	98.75	89.34	87.13	-13.93	-11.61	87%	88%	
10	232.31	228.23	205.25	203.56	-27.06	-24.67	88%	89%	
15	362.84	358.77	325.45	324.38	-37.39	-34.39	90%	90%	
20	490.46	485.47	450.50	449.49	-39.95	-35.98	92%	93%	
25	603.80	597.38	572.66	570.92	-31.14	-26.46	95%	96%	
30	703.81	695.68	680.91	677.39	-22.91	-18.29	97%	97%	
35	784.08	774.40	767.51	761.28	-16.58	-13.12	98%	98%	
40	867.65	860.80	828.65	820.37	-39.00	-40.44	96%	95%	

Female -- Issue Age 55 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	6.96	Alpha =	5.00	Alpha =	-1.96	Alpha =	72%	
	Beta =	25.85	Beta =	21.95	Beta =	-3.91	Beta =	85%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	3.48	0.00	2.50	0.00	-0.98	0.00	72%		
5	83.23	80.89	72.63	70.75	-10.60	-10.14	87%	87%	
10	196.05	194.92	168.22	167.27	-27.84	-27.65	86%	86%	
15	318.30	318.16	273.01	272.94	-45.28	-45.22	86%	86%	
20	449.61	449.78	384.59	384.96	-65.02	-64.82	86%	86%	
25	576.10	575.41	498.99	499.51	-77.11	-75.91	87%	87%	
30	691.70	689.34	609.46	608.90	-82.24	-80.44	88%	88%	
35	786.65	782.41	705.39	702.78	-81.26	-79.63	90%	90%	
40	876.29	873.40	790.36	787.22	-85.93	-86.18	90%	90%	

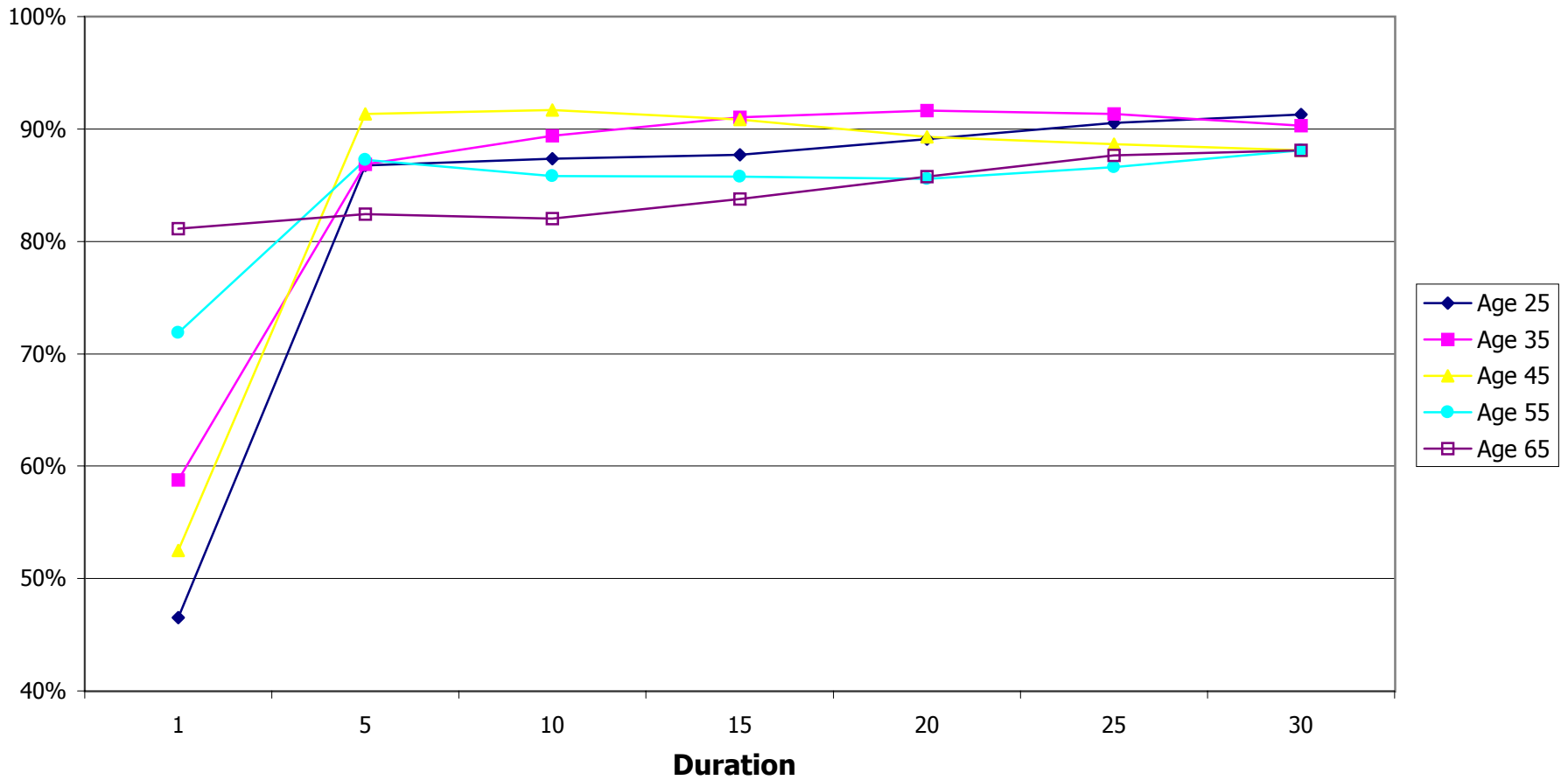
Male -- Issue Age 65 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	25.19	Alpha =	16.62	Alpha =	-8.56	Alpha =	66%	
	Beta =	60.64	Beta =	47.49	Beta =	-13.15	Beta =	78%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	12.59	0.00	8.31	0.00	-4.28	0.00	66%		
5	152.86	140.06	133.45	125.74	-19.41	-14.32	87%	90%	
10	324.00	309.97	295.27	287.63	-28.73	-22.34	91%	93%	
15	476.01	460.05	453.35	444.76	-22.66	-15.29	95%	97%	
20	610.13	591.88	593.42	582.53	-16.71	-9.35	97%	98%	
25	717.78	697.46	705.48	691.09	-12.30	-6.36	98%	99%	
30	829.86	813.33	784.60	767.55	-45.26	-45.77	95%	94%	

Female -- Issue Age 65 -- Whole Life -- Composite -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	14.38	Alpha =	11.66	Alpha =	-2.72	Alpha =	81%	
	Beta =	45.15	Beta =	36.97	Beta =	-8.18	Beta =	82%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	7.19	0.00	5.83	0.00	-1.36	0.00	81%		
5	133.41	127.20	109.99	104.92	-23.42	-22.28	82%	82%	
10	301.49	295.68	247.35	242.83	-54.15	-52.85	82%	82%	
15	463.41	456.50	388.18	383.85	-75.22	-72.66	84%	84%	
20	611.39	602.33	524.19	518.52	-87.20	-83.81	86%	86%	
25	732.93	721.47	642.28	634.10	-90.64	-87.37	88%	88%	
30	847.68	837.95	746.89	738.05	-100.79	-99.90	88%	88%	

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Female**



Male -- Issue Age 25 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.49		Alpha = 0.96		Alpha = -0.53		Alpha = 64%	
	Beta = 7.19		Beta = 5.99		Beta = -1.19		Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.74	0.00	0.48	0.00	-0.26	0.00	64%	
5	25.96	25.83	22.29	22.28	-3.67	-3.55	86%	86%
10	64.53	65.19	55.77	56.50	-8.75	-8.69	86%	87%
15	111.20	112.70	96.89	98.40	-14.32	-14.30	87%	87%
20	166.39	168.76	146.04	148.35	-20.35	-20.41	88%	88%
25	230.72	234.03	203.35	206.59	-27.36	-27.44	88%	88%
30	304.50	308.72	270.60	274.76	-33.91	-33.95	89%	89%
35	386.26	391.19	345.76	350.70	-40.49	-40.50	90%	90%
40	474.08	479.43	427.81	433.19	-46.27	-46.24	90%	90%
45	563.78	569.18	513.59	519.45	-50.19	-49.72	91%	91%
50	651.25	656.01	602.88	608.75	-48.37	-47.25	93%	93%
55	729.31	733.08	690.02	695.37	-39.30	-37.70	95%	95%
60	797.65	800.17	767.27	771.36	-30.38	-28.81	96%	96%
65	851.63	852.99	829.06	831.23	-22.57	-21.76	97%	97%
70	906.63	909.77	872.72	873.41	-33.91	-36.36	96%	96%

Female -- Issue Age 25 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.07		Alpha = 0.49		Alpha = -0.58		Alpha = 46%	
	Beta = 6.20		Beta = 5.08		Beta = -1.11		Beta = 82%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.53	0.00	0.24	0.00	-0.29	0.00	46%	
5	22.79	22.70	20.10	20.24	-2.69	-2.46	88%	89%
10	56.09	56.65	49.69	50.39	-6.40	-6.26	89%	89%
15	96.13	97.37	85.24	86.59	-10.90	-10.78	89%	89%
20	142.90	144.84	128.05	130.18	-14.85	-14.66	90%	90%
25	197.35	200.12	178.59	181.48	-18.76	-18.64	90%	91%
30	260.26	263.87	236.32	239.89	-23.94	-23.98	91%	91%
35	332.11	336.74	300.62	304.84	-31.49	-31.90	91%	91%
40	414.33	419.82	371.81	376.76	-42.51	-43.06	90%	90%
45	503.27	509.44	450.17	455.78	-53.10	-53.66	89%	89%
50	598.25	604.62	533.84	539.83	-64.41	-64.79	89%	89%
55	689.63	695.36	619.84	625.94	-69.78	-69.42	90%	90%
60	772.93	777.44	702.99	708.30	-69.94	-69.14	91%	91%
65	841.22	844.36	775.24	779.00	-65.98	-65.36	92%	92%
70	905.44	909.51	838.81	842.10	-66.62	-67.41	93%	93%

Male -- Issue Age 35 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.65		Alpha = 1.07		Alpha = -0.59		Alpha = 64%	
	Beta = 11.20		Beta = 9.36		Beta = -1.84		Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.83	0.00	0.53	0.00	-0.29	0.00	64%	
5	41.87	41.76	36.35	36.49	-5.52	-5.27	87%	87%
10	101.47	102.31	88.87	89.87	-12.59	-12.44	88%	88%
15	170.94	172.80	150.13	152.11	-20.81	-20.69	88%	88%
20	250.62	253.45	221.99	224.96	-28.64	-28.49	89%	89%
25	338.91	342.53	302.32	306.11	-36.60	-36.41	89%	89%
30	433.76	437.81	390.00	394.26	-43.76	-43.55	90%	90%
35	530.63	534.74	481.67	486.45	-48.96	-48.28	91%	91%
40	625.09	628.51	577.09	581.89	-48.01	-46.62	92%	93%
45	709.40	711.74	670.21	674.46	-39.19	-37.29	94%	95%
50	783.20	784.20	752.77	755.66	-30.43	-28.54	96%	96%
55	841.50	841.26	818.80	819.64	-22.70	-21.62	97%	97%
60	900.98	902.66	865.46	864.71	-35.52	-37.95	96%	96%

Female -- Issue Age 35 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.44		Alpha = 0.87		Alpha = -0.57		Alpha = 61%	
	Beta = 9.58		Beta = 8.00		Beta = -1.58		Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.72	0.00	0.44	0.00	-0.28	0.00	61%	
5	35.54	35.38	31.14	31.27	-4.40	-4.11	88%	88%
10	85.52	86.11	76.54	77.50	-8.98	-8.61	90%	90%
15	143.71	145.19	130.15	131.90	-13.56	-13.28	91%	91%
20	210.94	213.32	191.37	193.85	-19.57	-19.47	91%	91%
25	287.72	291.19	259.57	262.73	-28.15	-28.45	90%	90%
30	375.59	379.98	335.07	339.01	-40.52	-40.96	89%	89%
35	470.63	475.75	418.17	422.82	-52.46	-52.94	89%	89%
40	572.14	577.47	506.91	511.96	-65.23	-65.51	89%	89%
45	669.79	674.44	598.12	603.29	-71.67	-71.16	89%	89%
50	758.82	762.15	686.31	690.63	-72.51	-71.52	90%	91%
55	831.80	833.67	762.93	765.62	-68.87	-68.05	92%	92%
60	900.42	903.30	830.35	832.54	-70.07	-70.76	92%	92%

Male -- Issue Age 45 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 3.25 Beta = 18.29		Alpha = 2.28 Beta = 15.29		Alpha = -0.97 Beta = -3.01		Alpha = 70% Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.63	0.00	1.14	0.00	-0.49	0.00	70%	
5	65.40	64.69	56.52	56.29	-8.88	-8.40	86%	87%
10	155.50	155.88	136.50	137.37	-19.00	-18.51	88%	88%
15	255.33	256.60	225.90	227.69	-29.42	-28.90	88%	89%
20	362.57	364.34	323.49	325.81	-39.07	-38.53	89%	89%
25	472.10	473.93	425.53	428.42	-46.58	-45.51	90%	90%
30	578.91	579.96	531.73	534.64	-47.19	-45.32	92%	92%
35	674.23	674.07	635.37	637.67	-38.86	-36.41	94%	95%
40	757.69	756.00	727.26	728.04	-30.42	-27.96	96%	96%
45	823.63	820.54	800.75	799.26	-22.88	-21.29	97%	97%
50	891.00	890.12	852.68	849.42	-38.31	-40.69	96%	95%

Female -- Issue Age 45 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.93 Beta = 15.25		Alpha = 1.67 Beta = 12.91		Alpha = -1.26 Beta = -2.34		Alpha = 57% Beta = 85%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.46	0.00	0.84	0.00	-0.63	0.00	57%	
5	53.81	53.14	48.56	48.41	-5.26	-4.72	90%	91%
10	128.28	128.60	115.67	116.32	-12.61	-12.28	90%	90%
15	213.34	214.86	190.43	191.83	-22.91	-23.03	89%	89%
20	310.67	313.21	273.19	275.44	-37.47	-37.77	88%	88%
25	415.95	419.30	364.28	367.31	-51.66	-51.99	88%	88%
30	528.39	531.97	461.56	465.02	-66.83	-66.95	87%	87%
35	636.55	639.39	561.54	565.13	-75.01	-74.25	88%	88%
40	735.16	736.54	658.21	660.88	-76.96	-75.67	90%	90%
45	816.00	815.76	742.20	743.07	-73.80	-72.69	91%	91%
50	892.02	892.88	816.11	816.43	-75.91	-76.45	91%	91%

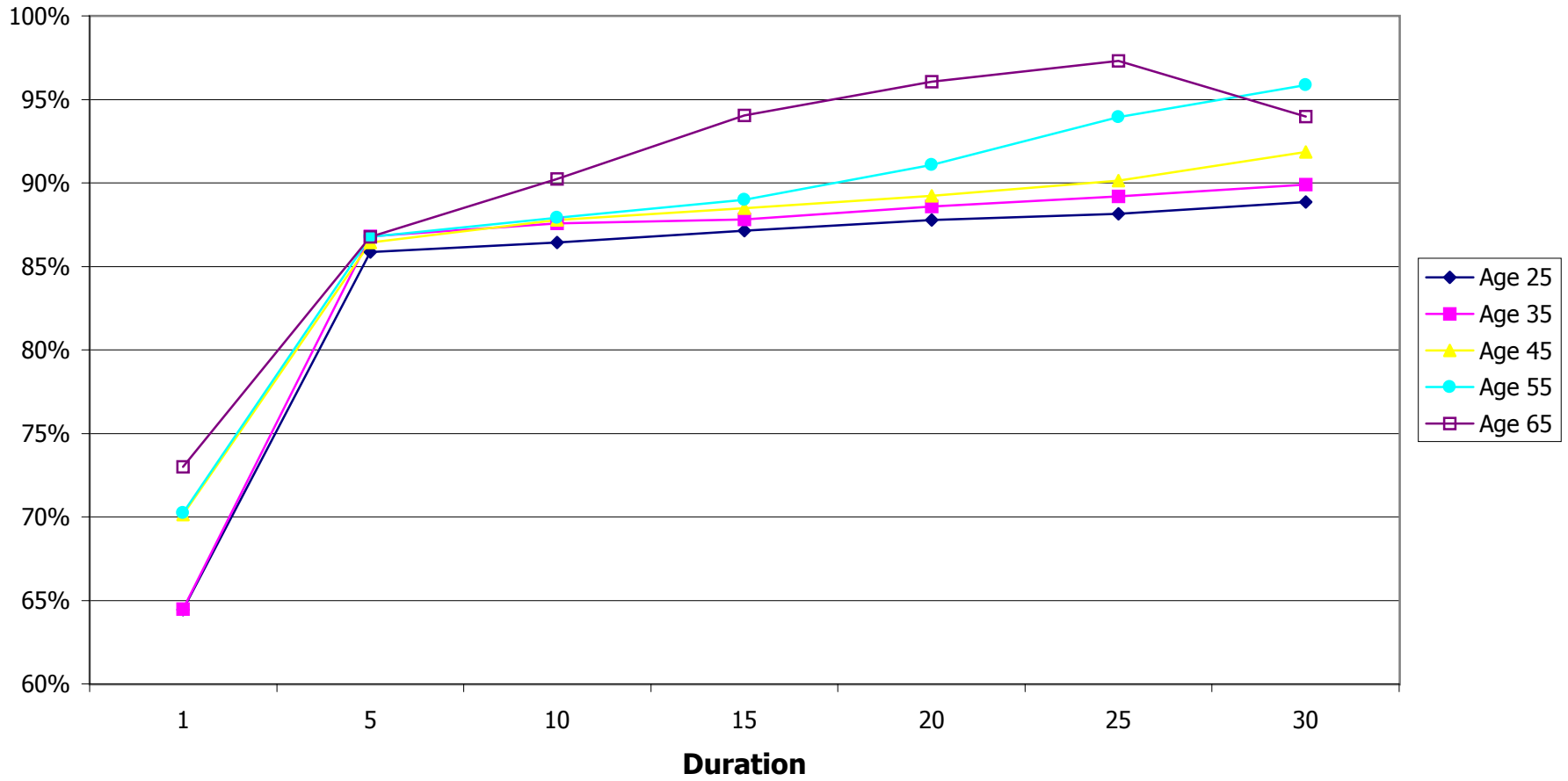
Male -- Issue Age 55 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 7.68 Beta = 31.34		Alpha = 5.40 Beta = 25.97		Alpha = -2.28 Beta = -5.37		Alpha = 70% Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.84	0.00	2.70	0.00	-1.14	0.00	70%	
5	101.60	98.56	88.16	86.34	-13.44	-12.22	87%	88%
10	231.64	229.21	203.61	202.41	-28.02	-26.80	88%	88%
15	364.45	362.09	324.32	323.80	-40.14	-38.29	89%	89%
20	493.97	490.67	449.96	449.46	-44.02	-41.20	91%	92%
25	609.56	604.79	572.57	571.35	-36.99	-33.44	94%	94%
30	710.76	704.15	681.28	678.27	-29.48	-25.88	96%	96%
35	790.76	782.45	768.23	762.51	-22.53	-19.93	97%	97%
40	872.64	867.04	829.66	821.86	-42.98	-45.18	95%	95%

Female -- Issue Age 55 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.02 Beta = 25.13		Alpha = 4.59 Beta = 21.34		Alpha = -1.43 Beta = -3.79		Alpha = 76% Beta = 85%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.01	0.00	2.29	0.00	-0.71	0.00	76%	
5	83.69	81.82	71.80	70.17	-11.89	-11.65	86%	86%
10	197.51	196.84	167.02	166.37	-30.48	-30.46	85%	85%
15	320.63	320.90	271.83	272.06	-48.80	-48.84	85%	85%
20	452.12	452.66	383.74	384.48	-68.38	-68.18	85%	85%
25	578.61	578.28	498.78	499.67	-79.83	-78.61	86%	86%
30	693.93	691.90	610.00	609.83	-83.94	-82.07	88%	88%
35	788.47	784.54	706.63	704.40	-81.84	-80.14	90%	90%
40	877.37	874.73	791.67	788.80	-85.70	-85.94	90%	90%

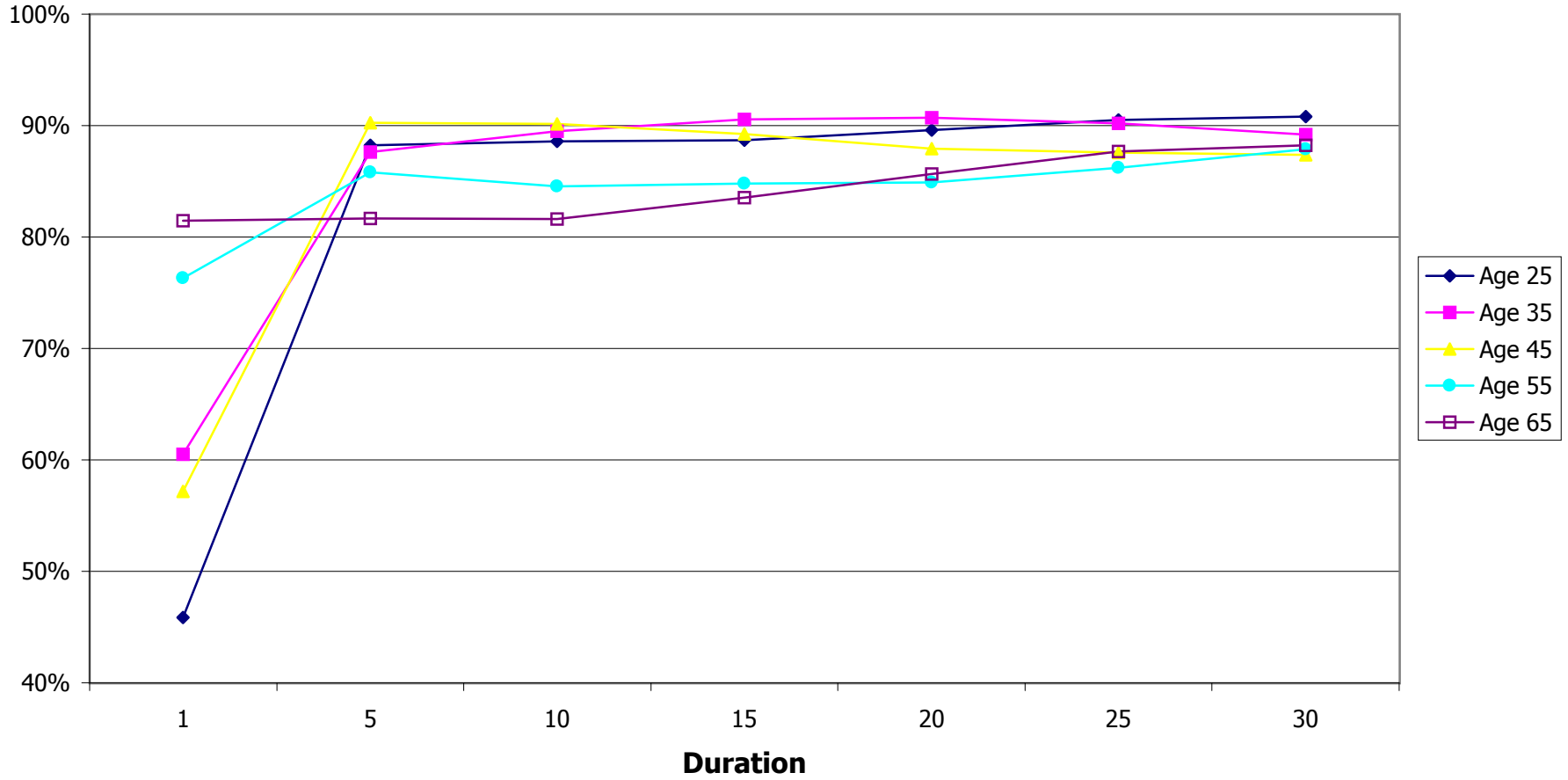
Male -- Issue Age 65 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 20.89 Beta = 56.90		Alpha = 15.25 Beta = 46.14		Alpha = -5.64 Beta = -10.77		Alpha = 73% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	10.45	0.00	7.63	0.00	-2.82	0.00	73%	
5	153.48	142.91	133.18	126.21	-20.31	-16.70	87%	88%
10	327.51	315.66	295.53	288.59	-31.98	-27.07	90%	91%
15	482.82	469.01	453.97	446.09	-28.85	-22.92	94%	95%
20	618.81	602.52	594.45	584.26	-24.36	-18.26	96%	97%
25	726.34	707.78	706.79	693.12	-19.54	-14.66	97%	98%
30	836.66	821.81	786.18	769.81	-50.48	-52.00	94%	94%

Female -- Issue Age 65 -- Whole Life -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 13.35 Beta = 44.47		Alpha = 10.87 Beta = 36.13		Alpha = -2.48 Beta = -8.34		Alpha = 81% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	6.67	0.00	5.43	0.00	-1.24	0.00	81%	
5	134.09	128.33	109.50	104.85	-24.58	-23.49	82%	82%
10	302.87	297.45	247.13	243.09	-55.74	-54.36	82%	82%
15	465.23	458.70	388.59	384.74	-76.64	-73.95	84%	84%
20	613.25	604.53	525.35	520.20	-87.90	-84.33	86%	86%
25	734.60	723.44	644.19	636.50	-90.41	-86.95	88%	88%
30	848.70	839.21	748.76	740.28	-99.94	-98.93	88%	88%

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Female**



Male -- Issue Age 25 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.10		Alpha = 1.60		Alpha = -0.50		Alpha = 76%	
	Beta = 9.43		Beta = 7.92		Beta = -1.52		Beta = 84%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.05	0.00	0.80	0.00	-0.25	0.00	76%	
5	33.56	33.29	27.95	27.69	-5.60	-5.61	83%	83%
10	82.82	83.49	69.32	69.94	-13.49	-13.55	84%	84%
15	141.25	142.80	119.54	121.03	-21.71	-21.77	85%	85%
20	207.67	209.96	177.92	180.13	-29.75	-29.83	86%	86%
25	281.20	284.19	243.20	246.26	-38.00	-37.94	86%	87%
30	361.13	364.61	317.39	321.12	-43.74	-43.49	88%	88%
35	444.24	447.97	395.65	399.77	-48.59	-48.20	89%	89%
40	528.82	532.44	476.57	480.55	-52.25	-51.89	90%	90%
45	609.95	613.19	556.29	560.50	-53.67	-52.69	91%	91%
50	686.32	688.73	638.23	642.38	-48.09	-46.35	93%	93%
55	750.91	752.17	717.13	720.64	-33.78	-31.53	96%	96%
60	806.19	806.39	785.78	788.17	-20.41	-18.22	97%	98%
65	850.94	850.52	840.14	840.61	-10.80	-9.91	99%	99%
70	903.37	905.50	877.39	876.65	-25.98	-28.86	97%	97%

Female -- Issue Age 25 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.26		Alpha = 0.75		Alpha = -0.51		Alpha = 60%	
	Beta = 7.33		Beta = 6.80		Beta = -0.53		Beta = 93%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.63	0.00	0.38	0.00	-0.25	0.00	60%	
5	26.83	26.70	26.43	26.53	-0.40	-0.17	99%	99%
10	65.60	66.17	64.77	65.54	-0.83	-0.62	99%	99%
15	111.44	112.68	110.03	111.56	-1.41	-1.12	99%	99%
20	163.09	164.87	163.70	166.10	0.61	1.22	100%	101%
25	220.95	223.43	225.44	228.53	4.49	5.10	102%	102%
30	285.71	288.84	292.47	295.96	6.76	7.13	102%	102%
35	357.61	361.63	363.04	366.87	5.43	5.24	102%	101%
40	438.84	443.56	437.23	441.45	-1.61	-2.11	100%	100%
45	524.50	529.73	515.16	519.69	-9.34	-10.04	98%	98%
50	615.21	620.47	593.80	598.13	-21.41	-22.34	97%	96%
55	700.16	704.66	669.87	673.94	-30.30	-30.72	96%	96%
60	777.29	780.63	738.81	741.54	-38.47	-39.08	95%	95%
65	840.68	842.96	793.74	794.90	-46.94	-48.06	94%	94%
70	903.76	907.44	845.21	847.12	-58.55	-60.32	94%	93%

Male -- Issue Age 35 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.58		Alpha = 1.96		Alpha = -0.62		Alpha = 76%	
	Beta = 14.92		Beta = 12.32		Beta = -2.60		Beta = 83%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.29	0.00	0.98	0.00	-0.31	0.00	76%	
5	53.72	53.18	45.39	45.15	-8.33	-8.03	84%	85%
10	127.08	127.36	108.80	109.34	-18.28	-18.01	86%	86%
15	208.30	209.36	179.73	181.19	-28.58	-28.17	86%	87%
20	296.59	298.18	260.32	262.51	-36.27	-35.67	88%	88%
25	388.39	390.25	345.33	347.95	-43.05	-42.30	89%	89%
30	481.81	483.56	433.24	435.70	-48.57	-47.86	90%	90%
35	571.43	572.75	519.84	522.55	-51.59	-50.19	91%	91%
40	655.77	656.19	608.85	611.51	-46.92	-44.68	93%	93%
45	727.12	726.26	694.57	696.53	-32.55	-29.74	96%	96%
50	788.18	786.14	769.15	769.88	-19.03	-16.26	98%	98%
55	837.61	834.90	828.20	826.85	-9.41	-8.04	99%	99%
60	895.52	895.62	868.66	866.00	-26.85	-29.63	97%	97%

Female -- Issue Age 35 -- Whole Life -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.90		Alpha = 1.50		Alpha = -0.40		Alpha = 79%	
	Beta = 11.41		Beta = 10.79		Beta = -0.62		Beta = 95%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.95	0.00	0.75	0.00	-0.20	0.00	79%	
5	41.19	40.78	40.49	40.41	-0.70	-0.36	98%	99%
10	97.02	97.20	98.45	99.32	1.43	2.12	101%	102%
15	159.57	160.50	165.14	166.75	5.57	6.25	103%	104%
20	229.57	231.21	237.54	239.59	7.97	8.37	103%	104%
25	307.30	309.90	313.75	316.17	6.45	6.27	102%	102%
30	395.11	398.47	393.89	396.72	-1.22	-1.75	100%	100%
35	487.72	491.62	478.06	481.22	-9.66	-10.40	98%	98%
40	585.78	589.71	563.00	565.94	-22.77	-23.77	96%	96%
45	677.61	680.73	645.15	647.83	-32.46	-32.89	95%	95%
50	760.99	762.85	719.62	720.85	-41.36	-42.00	95%	94%
55	829.51	830.23	778.94	778.48	-50.57	-51.76	94%	94%
60	897.71	899.94	834.54	834.88	-63.17	-65.06	93%	93%

Male -- Issue Age 45 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 6.15		Alpha = 4.48		Alpha = -1.67		Alpha = 73%		
	Beta = 24.61		Beta = 20.09		Beta = -4.52		Beta = 82%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.08	0.00	2.24	0.00	-0.84	0.00	73%		
5	79.67	77.30	67.70	66.35	-11.97	-10.95	85%	86%	
10	182.70	180.96	159.59	159.07	-23.10	-21.88	87%	88%	
15	289.83	288.41	256.54	256.50	-33.29	-31.91	89%	89%	
20	398.86	397.30	356.78	356.56	-42.08	-40.74	89%	90%	
25	503.44	501.39	455.52	455.59	-47.92	-45.79	90%	91%	
30	601.88	598.76	557.01	557.02	-44.86	-41.74	93%	93%	
35	685.14	680.54	654.76	653.97	-30.39	-26.58	96%	96%	
40	756.40	750.43	739.79	737.61	-16.61	-12.82	98%	98%	
45	814.08	807.32	807.13	802.57	-6.95	-4.75	99%	99%	
50	881.66	878.19	853.26	847.20	-28.40	-30.99	97%	96%	

Female -- Issue Age 45 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 4.52		Alpha = 3.07		Alpha = -1.45		Alpha = 68%		
	Beta = 18.09		Beta = 17.60		Beta = -0.50		Beta = 97%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.26	0.00	1.53	0.00	-0.73	0.00	68%		
5	59.12	57.52	62.36	61.45	3.24	3.92	105%	107%	
10	137.71	136.91	143.90	143.49	6.19	6.58	104%	105%	
15	224.97	225.25	229.75	229.75	4.78	4.50	102%	102%	
20	323.56	324.68	320.01	320.48	-3.54	-4.20	99%	99%	
25	427.52	429.26	414.82	415.66	-12.70	-13.60	97%	97%	
30	537.60	539.39	510.50	511.09	-27.11	-28.30	95%	95%	
35	640.71	641.56	603.03	603.33	-37.68	-38.23	94%	94%	
40	734.31	733.76	686.91	685.57	-47.40	-48.19	94%	93%	
45	811.24	809.41	753.73	750.48	-57.51	-58.93	93%	93%	
50	887.80	887.66	816.35	814.01	-71.45	-73.65	92%	92%	

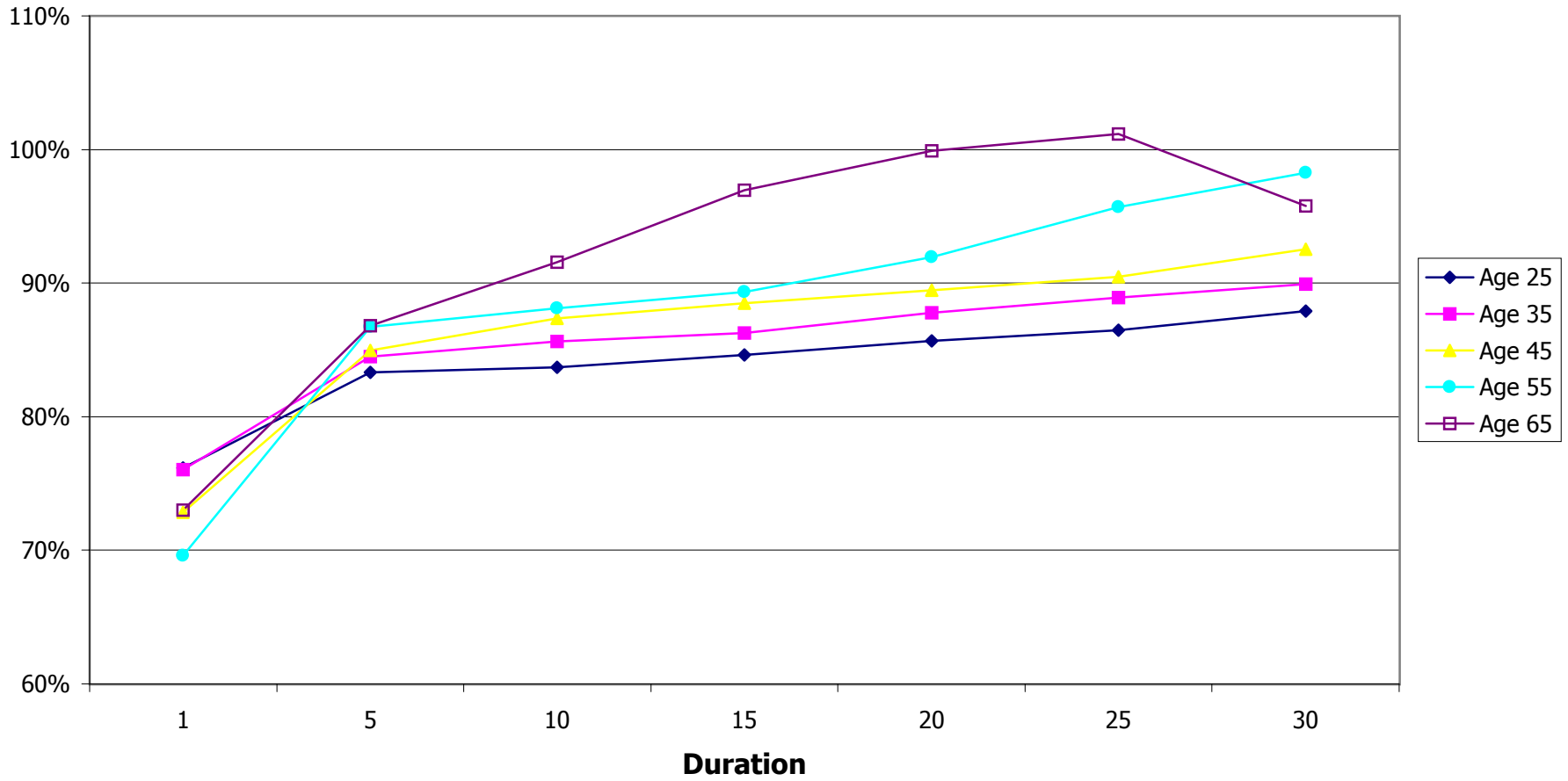
Male -- Issue Age 55 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 14.92		Alpha = 10.39		Alpha = -4.54		Alpha = 70%		
	Beta = 41.76		Beta = 33.78		Beta = -7.98		Beta = 81%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	7.46	0.00	5.19	0.00	-2.27	0.00	70%		
5	115.29	108.06	99.99	95.29	-15.30	-12.77	87%	88%	
10	251.96	244.54	221.97	217.04	-29.99	-27.51	88%	89%	
15	383.04	375.01	342.12	337.55	-40.92	-37.47	89%	90%	
20	506.43	497.07	465.63	460.97	-40.80	-36.10	92%	93%	
25	610.80	599.58	584.56	578.93	-26.24	-20.64	96%	97%	
30	700.12	687.17	688.04	680.71	-12.08	-6.46	98%	99%	
35	772.42	758.49	769.97	759.76	-2.44	1.27	100%	100%	
40	857.13	847.32	826.12	814.07	-31.01	-33.25	96%	96%	

Female -- Issue Age 55 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 9.24		Alpha = 8.92		Alpha = -0.32		Alpha = 97%		
	Beta = 29.20		Beta = 29.19		Beta = -0.01		Beta = 100%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	4.62	0.00	4.46	0.00	-0.16	0.00	97%		
5	88.10	84.52	86.69	82.57	-1.41	-1.95	98%	98%	
10	204.59	202.02	194.20	190.64	-10.40	-11.37	95%	94%	
15	327.44	325.59	307.12	304.01	-20.32	-21.58	94%	93%	
20	457.52	455.72	421.08	417.67	-36.45	-38.05	92%	92%	
25	579.35	576.45	531.29	527.53	-48.06	-48.92	92%	92%	
30	689.96	685.40	631.20	625.49	-58.76	-59.91	91%	91%	
35	780.86	774.79	710.78	702.80	-70.08	-71.99	91%	91%	
40	871.33	867.25	785.37	778.47	-85.96	-88.79	90%	90%	

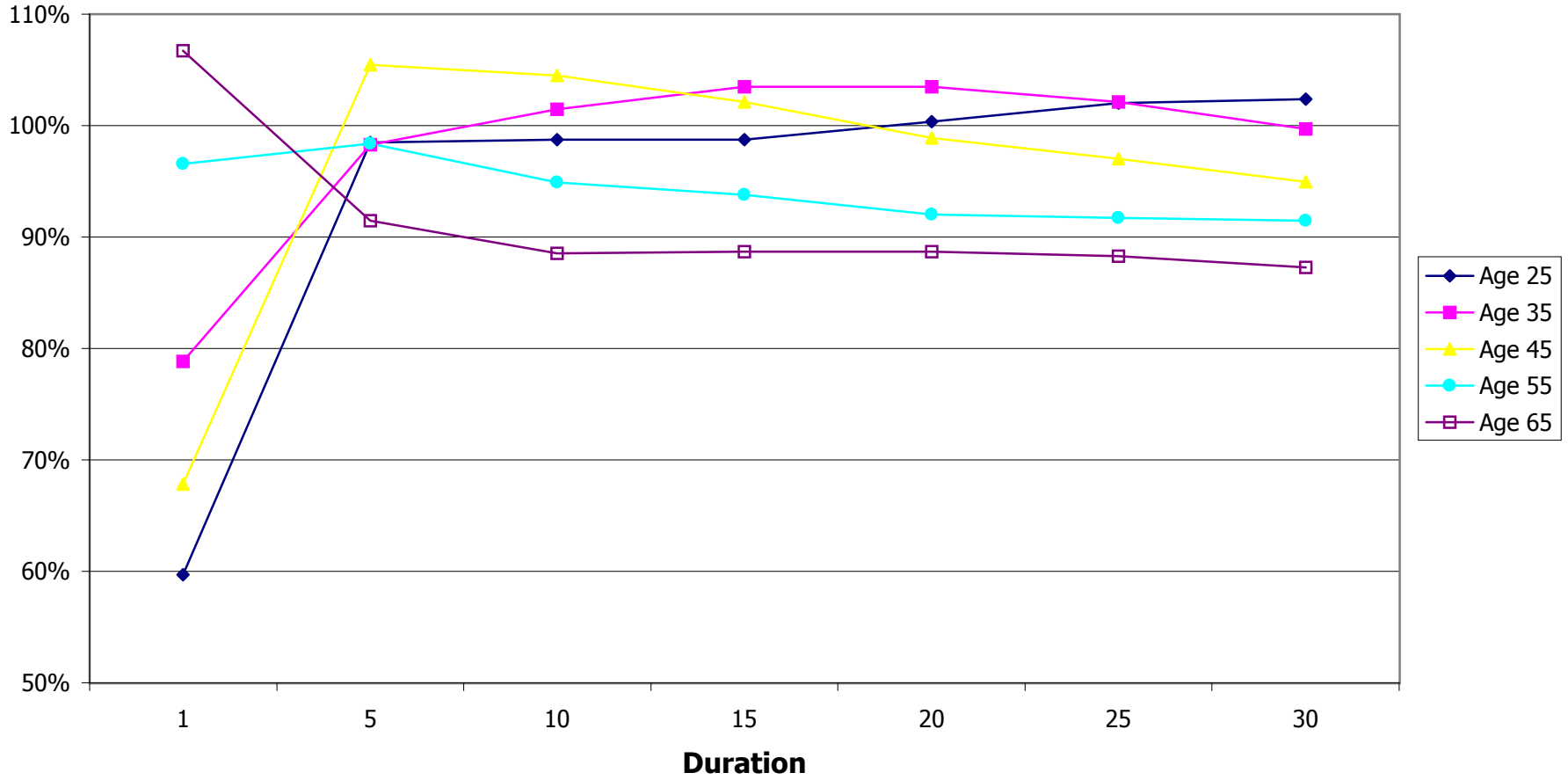
Male -- Issue Age 65 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 36.15		Alpha = 26.40		Alpha = -9.75		Alpha = 73%		
	Beta = 73.31		Beta = 58.16		Beta = -15.15		Beta = 79%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	18.08	0.00	13.20	0.00	-4.88	0.00	73%		
5	161.55	142.52	140.26	127.40	-21.28	-15.11	87%	89%	
10	330.83	309.98	302.94	289.98	-27.88	-20.00	92%	94%	
15	474.02	450.62	459.61	445.36	-14.42	-5.25	97%	99%	
20	596.57	570.80	595.91	579.43	-0.66	8.63	100%	102%	
25	695.76	668.64	703.84	683.55	8.07	14.91	101%	102%	
30	811.99	790.52	777.79	755.09	-34.20	-35.43	96%	96%	

Female -- Issue Age 65 -- Whole Life -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha = 18.83		Alpha = 20.10		Alpha = 1.27		Alpha = 107%		
	Beta = 50.32		Beta = 48.73		Beta = -1.58		Beta = 97%		
	Reserve		Reserve		Reserve		Reserve		
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	9.42	0.00	10.05	0.00	0.63	0.00	107%		
5	137.19	128.50	125.48	115.69	-11.71	-12.81	91%	90%	
10	305.28	296.66	270.26	260.11	-35.02	-36.55	89%	88%	
15	462.72	452.68	410.30	399.70	-52.42	-52.98	89%	88%	
20	605.64	593.46	537.24	524.16	-68.40	-69.30	89%	88%	
25	723.12	708.97	638.36	622.39	-84.76	-86.58	88%	88%	
30	840.02	828.46	733.13	718.53	-106.89	-109.93	87%	87%	

**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Male**



**Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Female**



Male -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.51 Beta = 18.45		Alpha = 1.09 Beta = 15.13		Alpha = -0.43 Beta = -3.31		Alpha = 72% Beta = 82%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.76	0.00	0.54	0.00	-0.21	0.00	72%	
5	70.09	69.90	59.71	59.94	-10.37	-9.97	85%	86%
10	167.75	169.02	142.12	143.26	-25.62	-25.76	85%	85%
15	276.05	277.93	232.93	234.92	-43.12	-43.02	84%	85%
20	384.93	386.09	331.04	333.51	-53.89	-52.58	86%	86%
25	488.76	489.93	435.00	438.11	-53.77	-51.82	89%	89%
30	590.28	590.71	539.38	542.16	-50.89	-48.55	91%	92%
35	680.44	679.73	640.98	643.15	-39.46	-36.59	94%	95%
40	759.99	757.93	731.00	731.69	-28.99	-26.23	96%	97%
45	823.84	820.55	803.02	801.47	-20.82	-19.08	97%	98%
50	890.32	889.27	853.87	850.61	-36.45	-38.67	96%	96%

Female -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.08 Beta = 14.61		Alpha = 0.93 Beta = 12.87		Alpha = -0.15 Beta = -1.74		Alpha = 86% Beta = 88%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.54	0.00	0.46	0.00	-0.08	0.00	86%	
5	57.03	57.12	50.76	50.93	-6.27	-6.19	89%	89%
10	135.96	137.08	120.70	121.64	-15.26	-15.44	89%	89%
15	225.68	227.87	197.94	199.56	-27.74	-28.31	88%	88%
20	323.70	326.26	281.34	283.54	-42.35	-42.72	87%	87%
25	426.00	429.39	371.51	374.45	-54.49	-54.94	87%	87%
30	535.88	539.54	467.50	470.83	-68.38	-68.71	87%	87%
35	641.74	644.68	565.93	569.38	-75.81	-75.30	88%	88%
40	738.48	740.02	660.98	663.51	-77.50	-76.51	90%	90%
45	817.94	817.91	743.52	744.28	-74.42	-73.63	91%	91%
50	892.96	894.06	816.62	816.93	-76.34	-77.12	91%	91%

Male -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 2.17 Beta = 14.97		Alpha = 2.60 Beta = 15.91		Alpha = 0.42 Beta = 0.94		Alpha = 119% Beta = 106%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.09	0.00	1.30	0.00	0.21	0.00	119%	
5	55.56	55.37	57.82	57.42	2.26	2.05	104%	104%
10	134.31	135.20	139.09	139.75	4.78	4.55	104%	103%
15	222.07	223.85	229.18	230.71	7.11	6.86	103%	103%
20	317.73	319.98	326.86	328.82	9.13	8.84	103%	103%
25	417.45	420.28	428.16	430.64	10.70	10.37	103%	102%
30	521.84	524.77	533.54	536.07	11.70	11.30	102%	102%
35	624.37	626.74	636.49	638.40	12.12	11.66	102%	102%
40	715.58	716.48	727.71	728.13	12.13	11.65	102%	102%
45	788.67	787.28	800.69	798.83	12.02	11.55	102%	101%
50	840.21	837.09	852.21	848.62	12.01	11.53	101%	101%

Female -- Issue Age 45 -- Whole Life -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 1.46 Beta = 12.43		Alpha = 1.83 Beta = 13.31		Alpha = 0.37 Beta = 0.88		Alpha = 126% Beta = 107%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.73	0.00	0.92	0.00	0.19	0.00	126%	
5	47.35	47.30	49.57	49.33	2.22	2.03	105%	104%
10	112.87	113.59	117.63	118.16	4.76	4.57	104%	104%
15	185.75	187.19	192.94	194.17	7.19	6.98	104%	104%
20	266.43	268.71	275.83	277.88	9.41	9.17	104%	103%
25	355.45	358.53	366.71	369.50	11.26	10.98	103%	103%
30	450.86	454.38	463.46	466.65	12.60	12.26	103%	103%
35	549.34	553.05	562.67	565.98	13.33	12.93	102%	102%
40	645.01	647.83	658.47	660.85	13.47	13.02	102%	102%
45	728.44	729.52	741.66	742.26	13.22	12.74	102%	102%
50	802.98	803.70	815.34	815.48	12.36	11.79	102%	101%

Male -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.68 Beta = 14.21		Alpha = 1.09 Beta = 15.13		Alpha = 0.41 Beta = 0.93		Alpha = 161% Beta = 107%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.34	0.00	0.54	0.00	0.21	0.00	161%	
5	57.46	57.89	59.71	59.94	2.26	2.05	104%	104%
10	137.38	138.74	142.12	143.26	4.74	4.52	103%	103%
15	225.89	228.12	232.93	234.92	7.05	6.80	103%	103%
20	322.01	324.77	331.04	333.51	9.02	8.74	103%	103%
25	424.45	427.91	435.00	438.11	10.55	10.21	102%	102%
30	527.85	531.03	539.38	542.16	11.53	11.14	102%	102%
35	629.03	631.65	640.98	643.15	11.94	11.50	102%	102%
40	719.04	720.21	731.00	731.69	11.96	11.48	102%	102%

Female -- Issue Age 45 -- Whole Life -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.56 Beta = 11.99		Alpha = 0.93 Beta = 12.87		Alpha = 0.37 Beta = 0.88		Alpha = 167% Beta = 107%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.28	0.00	0.46	0.00	0.19	0.00	167%	
5	48.55	48.90	50.76	50.93	2.21	2.03	105%	104%
10	115.97	117.10	120.70	121.64	4.73	4.53	104%	104%
15	190.81	192.63	197.94	199.56	7.13	6.93	104%	104%
20	272.02	274.45	281.34	283.54	9.32	9.09	103%	103%
25	360.35	363.57	371.51	374.45	11.16	10.88	103%	103%
30	455.01	458.67	467.50	470.83	12.50	12.16	103%	103%
35	552.71	556.56	565.93	569.38	13.22	12.82	102%	102%
40	647.62	650.59	660.98	663.51	13.36	12.91	102%	102%

45	791.17	790.08	803.02	801.47	11.85	11.39	101%	101%
50	842.03	839.24	853.87	850.61	11.85	11.37	101%	101%

45	730.41	731.64	743.52	744.28	13.11	12.64	102%	102%
50	804.36	805.24	816.62	816.93	12.26	11.69	102%	101%

Male -- Issue Age 25 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.73 Beta = 2.21		Alpha = 1.05 Beta = 1.32		Alpha = -0.69 Beta = -0.89		Alpha = 60% Beta = 60%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.87	0.00	0.52	0.00	-0.34	0.00	60%	
2	1.37	0.54	0.78	0.24	-0.59	-0.30	57%	44%
3	1.93	1.12	0.99	0.43	-0.94	-0.69	51%	38%
4	2.53	1.74	1.19	0.63	-1.34	-1.11	47%	36%
5	3.16	2.38	1.41	0.87	-1.75	-1.51	45%	36%
6	3.81	3.03	1.66	1.12	-2.15	-1.91	43%	37%
7	4.45	3.66	1.92	1.40	-2.53	-2.26	43%	38%
8	5.06	4.26	2.21	1.69	-2.86	-2.57	44%	40%
9	5.64	4.82	2.49	1.97	-3.15	-2.84	44%	41%
10	6.17	5.31	2.77	2.24	-3.40	-3.07	45%	42%
11	6.61	5.70	3.02	2.48	-3.59	-3.22	46%	44%
12	6.95	5.99	3.24	2.67	-3.71	-3.32	47%	45%
13	7.16	6.12	3.40	2.81	-3.76	-3.32	47%	46%
14	7.21	6.08	3.49	2.84	-3.72	-3.24	48%	47%
15	7.06	5.82	3.47	2.78	-3.58	-3.04	49%	48%
16	6.67	5.32	3.35	2.60	-3.32	-2.71	50%	49%
17	6.02	4.51	3.10	2.27	-2.92	-2.24	52%	50%
18	5.05	3.39	2.68	1.76	-2.38	-1.63	53%	52%
19	3.75	1.90	2.05	1.02	-1.70	-0.88	55%	54%
20	2.05	0.00	1.17	0.00	-0.88	0.00	57%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.14 Beta = 1.72		Alpha = 0.53 Beta = 0.91		Alpha = -0.61 Beta = -0.80		Alpha = 47% Beta = 53%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.57	0.00	0.26	0.00	-0.30	0.00	47%	
2	1.15	0.58	0.65	0.38	-0.50	-0.19	57%	66%
3	1.72	1.15	1.02	0.74	-0.70	-0.41	59%	65%
4	2.29	1.71	1.37	1.09	-0.92	-0.62	60%	64%
5	2.84	2.25	1.71	1.42	-1.13	-0.84	60%	63%
6	3.37	2.77	2.04	1.74	-1.33	-1.03	60%	63%
7	3.88	3.26	2.35	2.03	-1.53	-1.23	61%	62%
8	4.35	3.73	2.62	2.30	-1.73	-1.43	60%	62%
9	4.80	4.16	2.86	2.52	-1.94	-1.64	60%	61%
10	5.21	4.53	3.06	2.69	-2.14	-1.84	59%	59%
11	5.55	4.85	3.19	2.78	-2.36	-2.07	57%	57%
12	5.82	5.07	3.25	2.81	-2.57	-2.27	56%	55%
13	5.98	5.17	3.24	2.76	-2.74	-2.41	54%	53%
14	6.00	5.12	3.16	2.64	-2.85	-2.48	53%	52%
15	5.86	4.89	3.01	2.46	-2.85	-2.42	51%	50%
16	5.52	4.43	2.79	2.20	-2.73	-2.23	51%	50%
17	4.94	3.74	2.48	1.85	-2.46	-1.89	50%	49%
18	4.11	2.77	2.07	1.38	-2.04	-1.40	50%	50%
19	3.01	1.53	1.53	0.77	-1.48	-0.76	51%	50%
20	1.63	0.00	0.84	0.00	-0.78	0.00	52%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.07 Beta = 4.36		Alpha = 1.18 Beta = 2.48		Alpha = -0.88 Beta = -1.88		Alpha = 57% Beta = 57%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.03	0.00	0.59	0.00	-0.44	0.00	57%	
2	3.32	2.27	1.88	1.28	-1.44	-0.99	57%	57%
3	5.56	4.48	3.16	2.56	-2.40	-1.92	57%	57%
4	7.73	6.62	4.42	3.80	-3.31	-2.82	57%	57%
5	9.81	8.64	5.64	5.00	-4.17	-3.65	57%	58%
6	11.77	10.53	6.81	6.13	-4.96	-4.40	58%	58%
7	13.56	12.23	7.90	7.18	-5.67	-5.05	58%	59%
8	15.17	13.75	8.89	8.11	-6.29	-5.64	59%	59%
9	16.56	15.02	9.74	8.88	-6.83	-6.14	59%	59%
10	17.70	16.03	10.41	9.45	-7.30	-6.58	59%	59%
11	18.56	16.72	10.86	9.78	-7.70	-6.94	58%	58%
12	19.08	17.08	11.07	9.87	-8.02	-7.21	58%	58%
13	19.25	17.05	11.02	9.69	-8.22	-7.35	57%	57%
14	19.00	16.59	10.76	9.34	-8.24	-7.24	57%	56%
15	18.29	15.63	10.30	8.78	-7.99	-6.85	56%	56%
16	17.05	14.11	9.61	7.95	-7.45	-6.16	56%	56%
17	15.20	11.92	8.60	6.77	-6.59	-5.14	57%	57%
18	12.60	8.93	7.19	5.12	-5.42	-3.81	57%	57%
19	9.15	5.01	5.25	2.91	-3.90	-2.10	57%	58%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.62 Beta = 3.32		Alpha = 0.95 Beta = 1.95		Alpha = -0.67 Beta = -1.37		Alpha = 59% Beta = 59%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.81	0.00	0.47	0.00	-0.33	0.00	59%	
2	2.50	1.68	1.47	0.99	-1.03	-0.69	59%	59%
3	4.15	3.30	2.44	1.94	-1.71	-1.36	59%	59%
4	5.73	4.84	3.38	2.87	-2.35	-1.97	59%	59%
5	7.22	6.27	4.30	3.78	-2.92	-2.49	60%	60%
6	8.58	7.57	5.20	4.67	-3.38	-2.90	61%	62%
7	9.80	8.70	6.06	5.51	-3.74	-3.19	62%	63%
8	10.84	9.66	6.88	6.29	-3.97	-3.37	63%	65%
9	11.71	10.44	7.62	7.00	-4.09	-3.44	65%	67%
10	12.39	11.02	8.28	7.60	-4.11	-3.41	67%	69%
11	12.86	11.38	8.82	8.09	-4.04	-3.29	69%	71%
12	13.11	11.52	9.22	8.41	-3.89	-3.11	70%	73%
13	13.13	11.41	9.44	8.52	-3.69	-2.89	72%	75%
14	12.87	11.01	9.44	8.41	-3.44	-2.61	73%	76%
15	12.31	10.29	9.18	8.00	-3.13	-2.29	75%	78%
16	11.40	9.19	8.61	7.27	-2.79	-1.92	76%	79%
17	10.10	7.68	7.69	6.17	-2.41	-1.52	76%	80%
18	8.35	5.70	6.37	4.62	-1.98	-1.08	76%	81%
19	6.09	3.15	4.58	2.58	-1.51	-0.57	75%	82%

20	4.69	0.00	2.69	0.00	-1.99	0.00	57%
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20	3.24	0.00	2.27	0.00	-0.97	0.00	70%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha =	4.46	Alpha =	2.60	Alpha =	-1.87	Alpha = 58%	
	Beta =	10.00	Beta =	6.08	Beta =	-3.92	Beta = 61%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.23	0.00	1.30	0.00	-0.93	0.00	58%	
2	7.71	5.42	4.74	3.39	-2.97	-2.03	61%	63%
3	13.07	10.71	8.07	6.67	-4.99	-4.04	62%	62%
4	18.27	15.83	11.35	9.95	-6.92	-5.89	62%	63%
5	23.29	20.75	14.61	13.19	-8.68	-7.56	63%	64%
6	28.08	25.41	17.81	16.34	-10.27	-9.07	63%	64%
7	32.56	29.72	20.89	19.35	-11.68	-10.37	64%	65%
8	36.66	33.60	23.76	22.09	-12.90	-11.51	65%	66%
9	40.26	36.93	26.34	24.51	-13.93	-12.43	65%	66%
10	43.27	39.60	28.53	26.47	-14.74	-13.13	66%	67%
11	45.56	41.51	30.21	27.86	-15.35	-13.65	66%	67%
12	47.03	42.54	31.28	28.61	-15.75	-13.93	67%	67%
13	47.57	42.61	31.67	28.64	-15.91	-13.96	67%	67%
14	47.09	41.57	31.38	28.04	-15.71	-13.54	67%	67%
15	45.44	39.30	30.40	26.68	-15.04	-12.63	67%	68%
16	42.44	35.57	28.56	24.36	-13.88	-11.21	67%	68%
17	37.85	30.13	25.63	20.82	-12.22	-9.31	68%	69%
18	31.39	22.65	21.33	15.75	-10.07	-6.91	68%	70%
19	22.70	12.75	15.35	8.87	-7.35	-3.88	68%	70%
20	11.38	0.00	7.48	0.00	-3.90	0.00	66%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha =	3.49	Alpha =	1.83	Alpha =	-1.66	Alpha = 52%	
	Beta =	6.60	Beta =	4.83	Beta =	-1.77	Beta = 73%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.74	0.00	0.92	0.00	-0.83	0.00	52%	
2	4.81	3.01	3.89	2.96	-0.91	-0.06	81%	98%
3	7.77	5.92	6.81	5.83	-0.96	-0.09	88%	98%
4	10.60	8.68	9.63	8.60	-0.97	-0.08	91%	99%
5	13.28	11.27	12.33	11.22	-0.95	-0.05	93%	100%
6	15.77	13.66	14.86	13.66	-0.91	0.00	94%	100%
7	18.04	15.81	17.19	15.89	-0.84	0.08	95%	100%
8	20.04	17.67	19.28	17.84	-0.76	0.16	96%	101%
9	21.73	19.18	21.07	19.47	-0.66	0.29	97%	102%
10	23.04	20.29	22.52	20.75	-0.51	0.45	98%	102%
11	23.94	20.98	23.60	21.61	-0.34	0.63	99%	103%
12	24.40	21.22	24.22	21.99	-0.18	0.77	99%	104%
13	24.42	21.01	24.32	21.82	-0.09	0.82	100%	104%
14	23.97	20.34	23.84	21.03	-0.13	0.69	99%	103%
15	23.05	19.15	22.73	19.60	-0.31	0.45	99%	102%
16	21.56	17.36	20.95	17.46	-0.61	0.10	97%	101%
17	19.39	14.80	18.41	14.53	-0.97	-0.27	95%	98%
18	16.33	11.25	15.04	10.71	-1.29	-0.54	92%	95%
19	12.13	6.40	10.73	5.91	-1.40	-0.49	88%	92%
20	6.50	0.00	5.37	0.00	-1.13	0.00	83%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha =	10.30	Alpha =	6.05	Alpha =	-4.24	Alpha = 59%	
	Beta =	23.54	Beta =	15.46	Beta =	-8.08	Beta = 66%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	5.15	0.00	3.03	0.00	-2.12	0.00	59%	
2	18.21	12.89	12.30	9.13	-5.92	-3.76	68%	71%
3	30.95	25.46	21.28	17.97	-9.66	-7.50	69%	71%
4	43.33	37.66	30.03	26.64	-13.30	-11.02	69%	71%
5	55.30	49.40	38.57	35.05	-16.73	-14.36	70%	71%
6	66.75	60.56	46.78	43.05	-19.97	-17.51	70%	71%
7	77.54	70.98	54.47	50.42	-23.08	-20.56	70%	71%
8	87.49	80.47	61.41	56.93	-26.09	-23.54	70%	71%
9	96.39	88.77	67.38	62.38	-29.00	-26.39	70%	70%
10	103.97	95.63	72.25	66.65	-31.72	-28.98	69%	70%
11	109.99	100.80	75.87	69.63	-34.11	-31.17	69%	69%
12	114.18	104.02	78.14	71.20	-36.03	-32.82	68%	68%
13	116.28	105.00	78.98	71.30	-37.30	-33.70	68%	68%
14	115.98	103.42	78.22	69.67	-37.76	-33.75	67%	67%
15	112.89	98.83	75.66	66.18	-37.24	-32.65	67%	67%
16	106.47	90.58	70.98	60.31	-35.49	-30.26	67%	67%
17	95.97	77.82	63.71	51.64	-32.26	-26.19	66%	66%
18	80.41	59.46	53.09	39.07	-27.33	-20.39	66%	66%
19	58.53	34.07	38.31	22.08	-20.22	-11.99	65%	65%

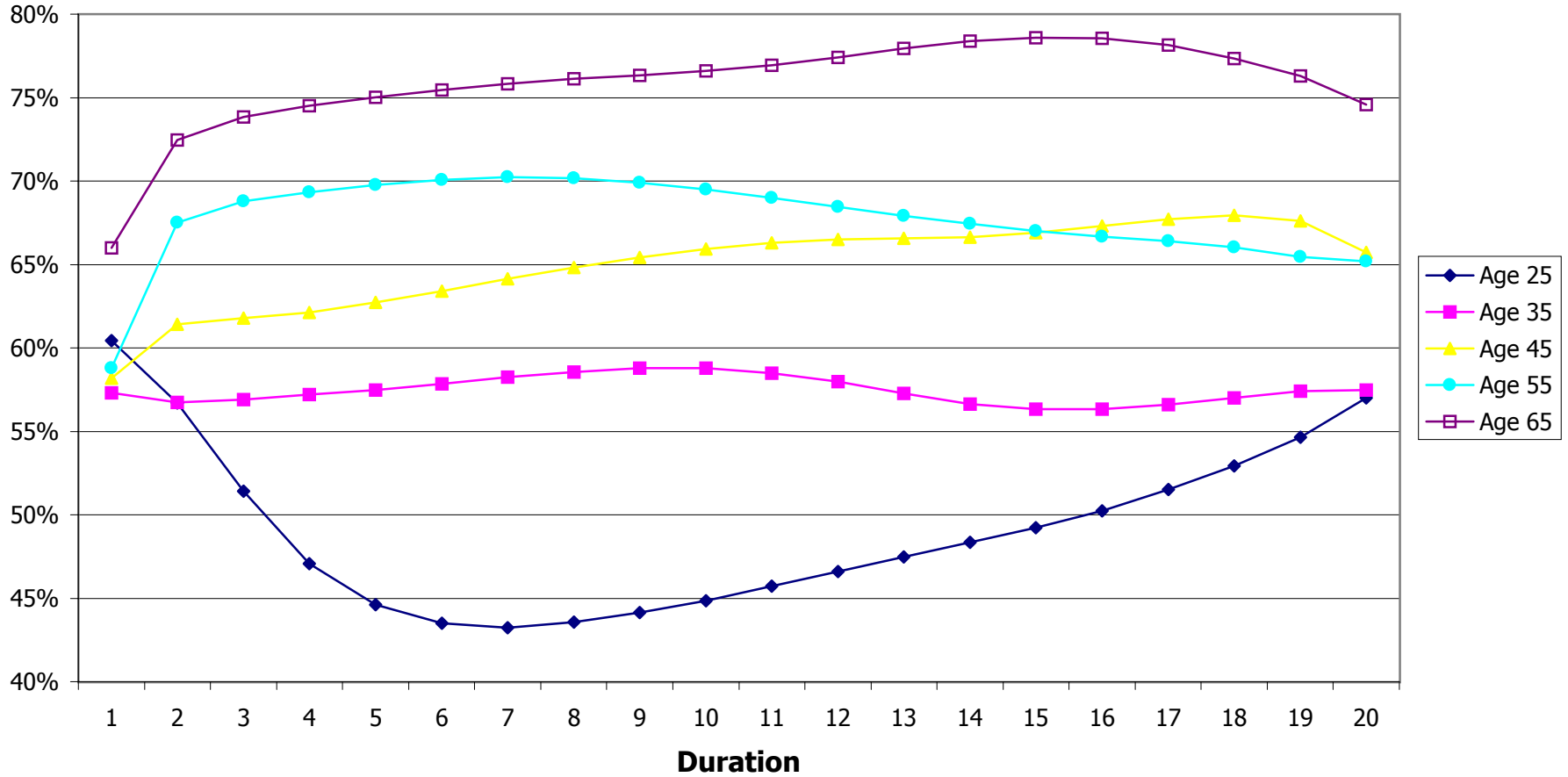
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha =	6.96	Alpha =	5.00	Alpha =	-1.96	Alpha = 72%	
	Beta =	14.01	Beta =	11.33	Beta =	-2.68	Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.48	0.00	2.50	0.00	-0.98	0.00	72%	
2	10.45	6.90	8.70	6.08	-1.75	-0.82	83%	88%
3	17.30	13.69	14.65	11.90	-2.65	-1.79	85%	87%
4	24.05	20.40	20.31	17.40	-3.74	-3.00	84%	85%
5	30.70	26.99	25.65	22.58	-5.05	-4.41	84%	84%
6	37.21	33.41	30.66	27.42	-6.54	-6.00	82%	82%
7	43.47	39.52	35.29	31.84	-8.18	-7.69	81%	81%
8	49.34	45.15	39.47	35.79	-9.87	-9.37	80%	79%
9	54.61	50.05	43.16	39.20	-11.45	-10.85	79%	78%
10	59.04	54.02	46.26	41.99	-12.78	-12.02	78%	78%
11	62.46	56.89	48.69	44.05	-13.77	-12.84	78%	77%
12	64.73	58.56	50.33	45.27	-14.40	-13.29	78%	77%
13	65.74	58.91	51.04	45.49	-14.69	-13.42	78%	77%
14	65.41	57.90	50.69	44.55	-14.72	-13.34	77%	77%
15	63.60	55.30	49.07	42.26	-14.54	-13.04	77%	76%
16	60.05	50.79	45.98	38.37	-14.07	-12.42	77%	76%
17	54.32	43.83	41.12	32.55	-13.20	-11.29	76%	74%
18	45.76	33.68	34.17	24.47	-11.59	-9.22	75%	73%
19	33.56	19.42	24.78	13.76	-8.78	-5.66	74%	71%

20	28.80	0.00	18.77	0.00	-10.03	0.00	65%	20	16.72	0.00	12.55	0.00	-4.17	0.00	75%
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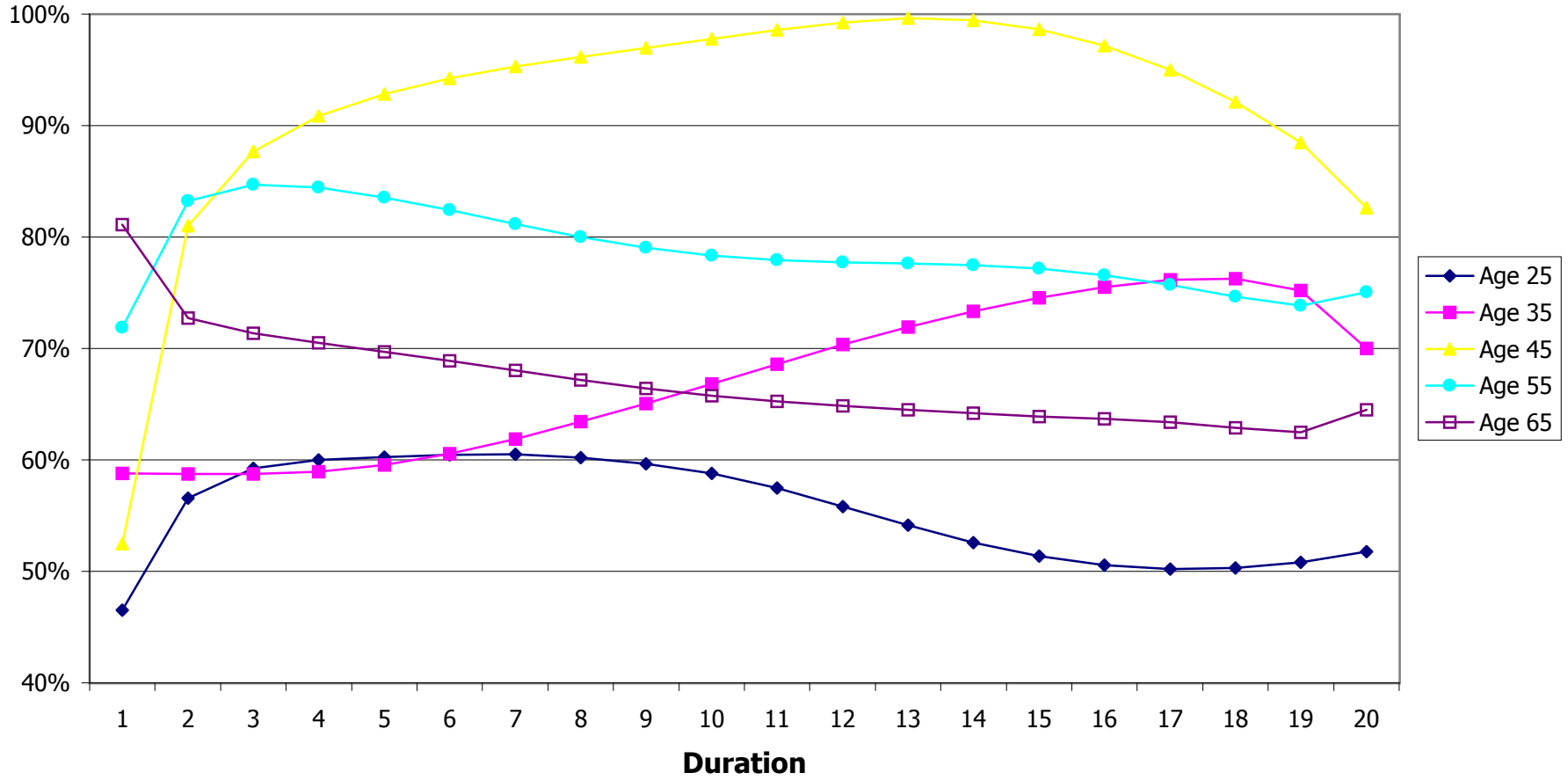
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 25.19		Alpha = 16.62		Alpha = -8.56		Alpha = 66%	
	Beta = 53.86		Beta = 38.16		Beta = -15.70		Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	12.59	0.00	8.31	0.00	-4.28	0.00	66%	
2	40.83	27.81	29.59	21.02	-11.24	-6.79	72%	76%
3	68.36	55.05	50.46	41.75	-17.89	-13.30	74%	76%
4	95.28	81.66	71.00	62.09	-24.29	-19.57	75%	76%
5	121.52	107.52	91.16	82.07	-30.36	-25.45	75%	76%
6	146.88	132.37	110.81	101.40	-36.06	-30.98	75%	77%
7	171.06	155.89	129.72	119.88	-41.34	-36.01	76%	77%
8	193.68	177.60	147.42	136.79	-46.26	-40.81	76%	77%
9	214.21	196.96	163.49	152.01	-50.73	-44.95	76%	77%
10	232.12	213.41	177.76	165.35	-54.36	-48.07	77%	77%
11	246.84	226.41	189.94	176.38	-56.90	-50.03	77%	78%
12	257.84	235.41	199.62	184.69	-58.23	-50.73	77%	78%
13	264.53	239.79	206.15	189.46	-58.38	-50.33	78%	79%
14	266.21	238.78	208.63	189.65	-57.58	-49.13	78%	79%
15	261.93	231.23	205.88	183.94	-56.06	-47.29	79%	80%
16	250.23	215.37	196.55	171.00	-53.68	-44.38	79%	79%
17	228.99	188.75	178.94	148.72	-50.06	-40.04	78%	79%
18	195.16	147.70	150.97	115.06	-44.19	-32.65	77%	78%
19	144.33	87.10	110.10	66.98	-34.23	-20.12	76%	77%
20	70.48	0.00	52.57	0.00	-17.91	0.00	75%	

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 14.38		Alpha = 11.66		Alpha = -2.72		Alpha = 81%	
	Beta = 35.07		Beta = 26.11		Beta = -8.96		Beta = 74%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	7.19	0.00	5.83	0.00	-1.36	0.00	81%	
2	27.70	20.32	20.15	14.19	-7.55	-6.14	73%	70%
3	47.92	40.45	34.20	28.11	-13.72	-12.35	71%	69%
4	67.99	60.46	47.95	41.67	-20.05	-18.78	71%	69%
5	87.90	80.28	61.28	54.78	-26.62	-25.49	70%	68%
6	107.54	99.73	74.08	67.28	-33.46	-32.46	69%	67%
7	126.67	118.53	86.17	78.96	-40.49	-39.57	68%	67%
8	144.91	136.21	97.35	89.64	-47.55	-46.57	67%	66%
9	161.76	152.24	107.44	99.13	-54.32	-53.11	66%	65%
10	176.69	166.07	116.22	107.19	-60.48	-58.88	66%	65%
11	189.16	177.18	123.43	113.57	-65.72	-63.61	65%	64%
12	198.64	185.04	128.81	117.94	-69.84	-67.10	65%	64%
13	204.61	189.11	131.98	119.93	-72.62	-69.18	65%	63%
14	206.46	188.74	132.55	119.07	-73.91	-69.67	64%	63%
15	203.40	182.98	130.00	114.82	-73.40	-68.16	64%	63%
16	194.25	170.45	123.72	106.51	-70.53	-63.94	64%	62%
17	177.34	149.16	112.43	92.24	-64.91	-56.92	63%	62%
18	150.30	116.37	94.49	70.64	-55.81	-45.74	63%	61%
19	109.87	68.30	68.66	40.57	-41.21	-27.72	62%	59%
20	51.68	0.00	33.34	0.00	-18.34	0.00	65%	

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Composite -- Ultimate -- Female**



Male -- Issue Age 25 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.49		Alpha = 0.96		Alpha = -0.53		Alpha = 64%	
	Beta = 1.76		Beta = 1.18		Beta = -0.57		Beta = 67%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.74	0.00	0.48	0.00	-0.26	0.00	64%	
2	1.04	0.32	0.69	0.19	-0.35	-0.13	66%	60%
3	1.38	0.68	0.86	0.34	-0.52	-0.34	62%	51%
4	1.75	1.07	1.02	0.52	-0.73	-0.55	58%	49%
5	2.16	1.48	1.21	0.73	-0.94	-0.76	56%	49%
6	2.58	1.91	1.43	0.95	-1.15	-0.96	55%	50%
7	3.00	2.34	1.67	1.20	-1.34	-1.14	55%	51%
8	3.42	2.74	1.92	1.46	-1.50	-1.29	56%	53%
9	3.81	3.12	2.17	1.69	-1.65	-1.43	57%	54%
10	4.17	3.46	2.40	1.92	-1.77	-1.53	58%	56%
11	4.47	3.72	2.62	2.13	-1.85	-1.59	59%	57%
12	4.70	3.92	2.80	2.29	-1.90	-1.63	60%	58%
13	4.85	4.02	2.94	2.41	-1.91	-1.61	61%	60%
14	4.88	4.00	3.01	2.43	-1.87	-1.56	62%	61%
15	4.79	3.83	3.00	2.38	-1.79	-1.45	63%	62%
16	4.54	3.50	2.90	2.23	-1.65	-1.27	64%	64%
17	4.12	2.97	2.68	1.96	-1.43	-1.02	65%	66%
18	3.48	2.24	2.32	1.51	-1.16	-0.73	67%	68%
19	2.62	1.25	1.78	0.87	-0.84	-0.38	68%	70%
20	1.50	0.00	1.03	0.00	-0.48	0.00	68%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.07		Alpha = 0.49		Alpha = -0.58		Alpha = 46%	
	Beta = 1.53		Beta = 0.85		Beta = -0.68		Beta = 55%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.53	0.00	0.24	0.00	-0.29	0.00	46%	
2	0.99	0.45	0.59	0.34	-0.39	-0.11	60%	76%
3	1.44	0.90	0.93	0.66	-0.51	-0.24	64%	73%
4	1.88	1.34	1.24	0.98	-0.64	-0.36	66%	73%
5	2.32	1.77	1.55	1.28	-0.76	-0.49	67%	72%
6	2.73	2.18	1.85	1.57	-0.89	-0.61	67%	72%
7	3.14	2.57	2.12	1.83	-1.02	-0.74	68%	71%
8	3.52	2.95	2.37	2.06	-1.15	-0.89	67%	70%
9	3.88	3.30	2.58	2.26	-1.30	-1.03	67%	69%
10	4.21	3.59	2.76	2.41	-1.45	-1.18	66%	67%
11	4.48	3.85	2.88	2.50	-1.61	-1.35	64%	65%
12	4.70	4.03	2.93	2.53	-1.77	-1.50	62%	63%
13	4.83	4.10	2.92	2.47	-1.91	-1.63	61%	60%
14	4.84	4.06	2.85	2.38	-1.99	-1.68	59%	59%
15	4.73	3.87	2.72	2.22	-2.01	-1.65	58%	57%
16	4.45	3.52	2.52	1.97	-1.94	-1.54	57%	56%
17	4.00	2.96	2.24	1.65	-1.77	-1.31	56%	56%
18	3.34	2.20	1.87	1.23	-1.48	-0.97	56%	56%
19	2.47	1.22	1.38	0.69	-1.09	-0.53	56%	57%
20	1.37	0.00	0.77	0.00	-0.60	0.00	56%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.65		Alpha = 1.07		Alpha = -0.59		Alpha = 64%	
	Beta = 3.25		Beta = 2.19		Beta = -1.06		Beta = 67%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.83	0.00	0.53	0.00	-0.29	0.00	64%	
2	2.42	1.59	1.66	1.12	-0.76	-0.47	68%	70%
3	3.99	3.14	2.77	2.24	-1.22	-0.90	70%	71%
4	5.51	4.64	3.87	3.31	-1.64	-1.33	70%	71%
5	6.98	6.07	4.93	4.36	-2.05	-1.71	71%	72%
6	8.36	7.41	5.96	5.36	-2.41	-2.05	71%	72%
7	9.65	8.63	6.92	6.29	-2.72	-2.34	72%	73%
8	10.81	9.73	7.79	7.11	-3.01	-2.62	72%	73%
9	11.82	10.67	8.54	7.79	-3.28	-2.88	72%	73%
10	12.68	11.44	9.14	8.30	-3.54	-3.14	72%	73%
11	13.34	11.99	9.55	8.60	-3.79	-3.39	72%	72%
12	13.77	12.29	9.75	8.69	-4.02	-3.60	71%	71%
13	13.93	12.32	9.72	8.55	-4.21	-3.77	70%	69%
14	13.80	12.03	9.50	8.25	-4.31	-3.78	69%	69%
15	13.33	11.37	9.11	7.78	-4.22	-3.60	68%	68%
16	12.47	10.31	8.51	7.04	-3.96	-3.26	68%	68%
17	11.15	8.74	7.62	6.00	-3.53	-2.73	68%	69%
18	9.28	6.56	6.36	4.53	-2.91	-2.03	69%	69%
19	6.76	3.70	4.65	2.58	-2.11	-1.12	69%	70%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.44		Alpha = 0.87		Alpha = -0.57		Alpha = 61%	
	Beta = 2.84		Beta = 1.79		Beta = -1.05		Beta = 63%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.72	0.00	0.44	0.00	-0.28	0.00	61%	
2	2.11	1.37	1.34	0.90	-0.76	-0.48	64%	65%
3	3.45	2.70	2.22	1.75	-1.24	-0.94	64%	65%
4	4.75	3.96	3.07	2.61	-1.67	-1.35	65%	66%
5	5.97	5.14	3.92	3.44	-2.05	-1.70	66%	67%
6	7.10	6.22	4.73	4.24	-2.37	-1.98	67%	68%
7	8.12	7.17	5.52	5.01	-2.60	-2.16	68%	70%
8	9.00	7.98	6.26	5.72	-2.74	-2.26	70%	72%
9	9.73	8.65	6.94	6.38	-2.79	-2.27	71%	74%
10	10.33	9.16	7.55	6.93	-2.78	-2.23	73%	76%
11	10.76	9.51	8.05	7.38	-2.71	-2.13	75%	78%
12	11.01	9.67	8.42	7.68	-2.59	-1.99	76%	79%
13	11.06	9.61	8.63	7.79	-2.44	-1.83	78%	81%
14	10.88	9.31	8.63	7.68	-2.25	-1.63	79%	82%
15	10.45	8.74	8.40	7.33	-2.05	-1.41	80%	84%
16	9.71	7.84	7.89	6.67	-1.82	-1.18	81%	85%
17	8.63	6.59	7.06	5.66	-1.58	-0.93	82%	86%
18	7.17	4.91	5.85	4.25	-1.32	-0.66	82%	87%
19	5.24	2.73	4.20	2.37	-1.03	-0.35	80%	87%

20	3.47	0.00	2.38	0.00	-1.09	0.00	69%
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20	2.78	0.00	2.08	0.00	-0.70	0.00	75%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 3.25 Beta = 7.69		Alpha = 2.28 Beta = 5.46		Alpha = -0.97 Beta = -2.23		Alpha = 70% Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.63	0.00	1.14	0.00	-0.49	0.00	70%	
2	6.03	4.36	4.28	3.10	-1.75	-1.27	71%	71%
3	10.35	8.65	7.32	6.10	-3.02	-2.55	71%	71%
4	14.58	12.82	10.32	9.10	-4.25	-3.73	71%	71%
5	18.68	16.85	13.32	12.08	-5.36	-4.77	71%	72%
6	22.62	20.70	16.25	14.97	-6.37	-5.73	72%	72%
7	26.35	24.31	19.08	17.73	-7.27	-6.58	72%	73%
8	29.79	27.58	21.72	20.25	-8.07	-7.33	73%	73%
9	32.86	30.45	24.10	22.49	-8.76	-7.96	73%	74%
10	35.48	32.81	26.14	24.34	-9.33	-8.48	74%	74%
11	37.54	34.57	27.71	25.64	-9.82	-8.93	74%	74%
12	38.93	35.61	28.73	26.36	-10.21	-9.25	74%	74%
13	39.57	35.84	29.12	26.43	-10.45	-9.42	74%	74%
14	39.35	35.16	28.89	25.90	-10.45	-9.26	73%	74%
15	38.12	33.39	28.02	24.67	-10.10	-8.72	73%	74%
16	35.71	30.34	26.33	22.54	-9.37	-7.80	74%	74%
17	31.91	25.79	23.64	19.28	-8.27	-6.51	74%	75%
18	26.47	19.46	19.66	14.59	-6.80	-4.87	74%	75%
19	19.07	10.99	14.14	8.23	-4.93	-2.76	74%	75%
20	9.34	0.00	6.84	0.00	-2.50	0.00	73%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.93 Beta = 5.78		Alpha = 1.67 Beta = 4.45		Alpha = -1.26 Beta = -1.33		Alpha = 57% Beta = 77%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.46	0.00	0.84	0.00	-0.63	0.00	57%	
2	4.28	2.78	3.60	2.74	-0.68	-0.03	84%	99%
3	7.01	5.47	6.31	5.41	-0.71	-0.05	90%	99%
4	9.64	8.04	8.93	7.98	-0.72	-0.06	93%	99%
5	12.15	10.48	11.44	10.43	-0.72	-0.05	94%	100%
6	14.51	12.75	13.80	12.71	-0.71	-0.04	95%	100%
7	16.68	14.82	15.98	14.79	-0.70	-0.03	96%	100%
8	18.62	16.63	17.93	16.61	-0.69	-0.02	96%	100%
9	20.27	18.12	19.60	18.14	-0.66	0.02	97%	100%
10	21.58	19.27	20.97	19.34	-0.62	0.07	97%	100%
11	22.53	20.01	21.98	20.16	-0.55	0.15	98%	101%
12	23.06	20.33	22.57	20.52	-0.49	0.20	98%	101%
13	23.15	20.20	22.68	20.38	-0.47	0.18	98%	101%
14	22.79	19.61	22.25	19.66	-0.55	0.05	98%	100%
15	21.96	18.52	21.23	18.34	-0.73	-0.18	97%	99%
16	20.56	16.81	19.57	16.36	-0.98	-0.46	95%	97%
17	18.47	14.35	17.22	13.63	-1.25	-0.72	93%	95%
18	15.52	10.91	14.07	10.05	-1.45	-0.86	91%	92%
19	11.45	6.22	10.03	5.55	-1.43	-0.67	88%	89%
20	6.00	0.00	5.00	0.00	-1.00	0.00	83%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 7.68 Beta = 19.90		Alpha = 5.40 Beta = 14.32		Alpha = -2.28 Beta = -5.59		Alpha = 70% Beta = 72%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.84	0.00	2.70	0.00	-1.14	0.00	70%	
2	15.95	11.99	11.50	8.69	-4.44	-3.30	72%	72%
3	27.82	23.75	20.07	17.13	-7.76	-6.63	72%	72%
4	39.44	35.23	28.42	25.40	-11.02	-9.82	72%	72%
5	50.71	46.30	36.58	33.44	-14.13	-12.86	72%	72%
6	61.52	56.84	44.42	41.08	-17.10	-15.76	72%	72%
7	71.74	66.73	51.78	48.15	-19.96	-18.58	72%	72%
8	81.21	75.78	58.44	54.41	-22.77	-21.36	72%	72%
9	89.72	83.75	64.21	59.69	-25.51	-24.06	72%	71%
10	97.02	90.40	68.93	63.86	-28.09	-26.54	71%	71%
11	102.88	95.46	72.48	66.80	-30.39	-28.66	70%	70%
12	107.03	98.70	74.76	68.41	-32.27	-30.29	70%	69%
13	109.21	99.81	75.66	68.60	-33.55	-31.22	69%	69%
14	109.10	98.48	75.03	67.15	-34.06	-31.33	69%	68%
15	106.32	94.26	72.68	63.89	-33.64	-30.37	68%	68%
16	100.35	86.54	68.26	58.32	-32.09	-28.22	68%	67%
17	90.18	73.93	61.30	49.98	-28.88	-23.95	68%	68%
18	75.17	56.50	51.08	37.87	-24.09	-18.64	68%	67%
19	54.40	32.39	36.80	21.43	-17.60	-10.97	68%	66%

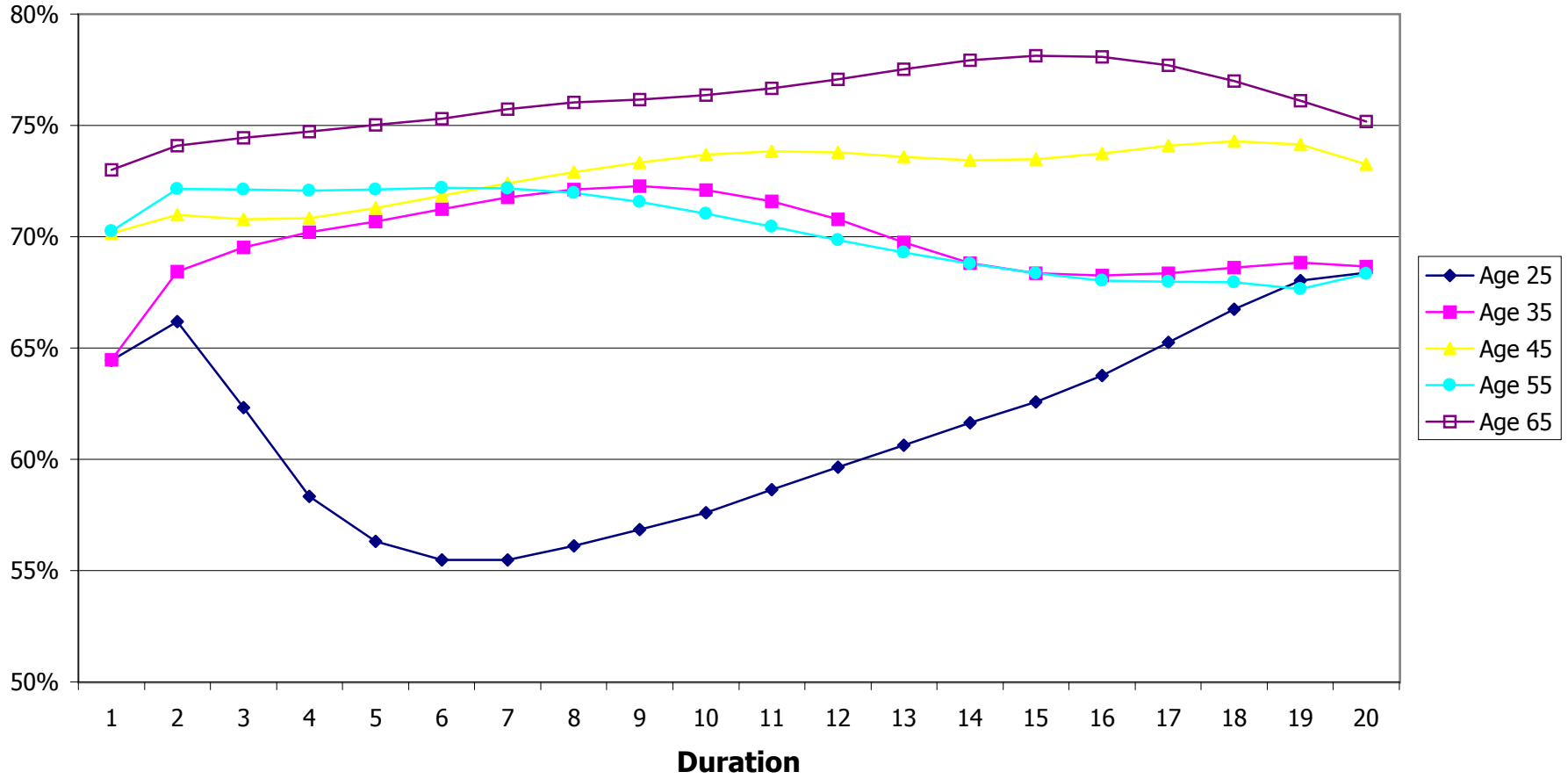
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.02 Beta = 13.08		Alpha = 4.59 Beta = 10.62		Alpha = -1.43 Beta = -2.46		Alpha = 76% Beta = 81%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.01	0.00	2.29	0.00	-0.71	0.00	76%	
2	10.00	6.93	8.21	5.80	-1.80	-1.13	82%	84%
3	16.88	13.75	13.89	11.36	-2.99	-2.39	82%	83%
4	23.65	20.48	19.30	16.63	-4.35	-3.85	82%	81%
5	30.32	27.09	24.43	21.61	-5.89	-5.48	81%	80%
6	36.84	33.50	29.25	26.27	-7.59	-7.24	79%	78%
7	43.10	39.61	33.71	30.53	-9.39	-9.08	78%	77%
8	48.97	45.24	37.74	34.34	-11.22	-10.91	77%	76%
9	54.24	50.17	41.30	37.64	-12.95	-12.53	76%	75%
10	58.70	54.17	44.30	40.35	-14.40	-13.81	75%	74%
11	62.17	57.10	46.67	42.37	-15.50	-14.73	75%	74%
12	64.49	58.81	48.28	43.57	-16.21	-15.24	75%	74%
13	65.55	59.20	49.00	43.81	-16.55	-15.39	75%	74%
14	65.24	58.19	48.67	42.92	-16.56	-15.27	75%	74%
15	63.43	55.58	47.13	40.71	-16.30	-14.87	74%	73%
16	59.84	51.01	44.15	36.97	-15.69	-14.04	74%	72%
17	54.04	43.98	39.48	31.38	-14.56	-12.61	73%	71%
18	45.41	33.76	32.79	23.58	-12.62	-10.17	72%	70%
19	33.14	19.44	23.73	13.27	-9.41	-6.17	72%	68%

20	26.15	0.00	17.87	0.00	-8.28	0.00	68%	20	16.26	0.00	11.94	0.00	-4.32	0.00	73%
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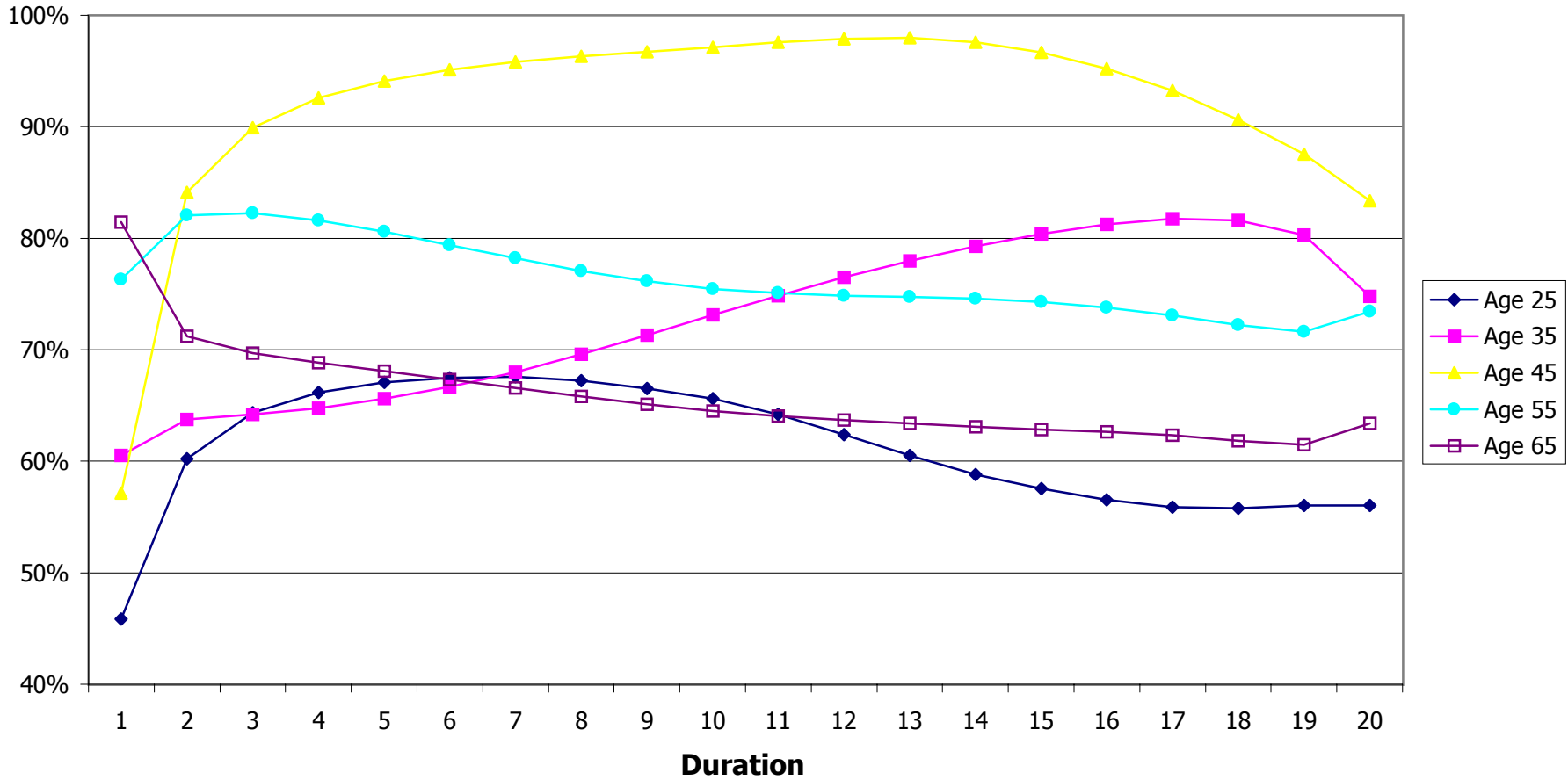
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 20.89		Alpha = 15.25		Alpha = -5.64		Alpha = 73%	
	Beta = 49.52		Beta = 36.53		Beta = -12.99		Beta = 74%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	10.45	0.00	7.63	0.00	-2.82	0.00	73%	
2	38.70	27.87	28.67	20.81	-10.02	-7.06	74%	75%
3	66.30	55.20	49.35	41.36	-16.95	-13.84	74%	75%
4	93.31	81.90	69.72	61.55	-23.59	-20.35	75%	75%
5	119.62	107.82	89.73	81.38	-29.89	-26.44	75%	75%
6	145.03	132.72	109.23	100.55	-35.80	-32.18	75%	76%
7	168.98	155.72	127.96	118.84	-41.03	-36.89	76%	76%
8	191.33	177.42	145.47	135.58	-45.86	-41.84	76%	76%
9	211.86	196.77	161.37	150.62	-50.49	-46.15	76%	77%
10	229.74	213.19	175.44	163.74	-54.30	-49.45	76%	77%
11	244.46	226.21	187.43	174.59	-57.03	-51.62	77%	77%
12	255.49	235.25	196.92	182.73	-58.57	-52.53	77%	78%
13	262.22	239.68	203.32	187.38	-58.91	-52.30	78%	78%
14	263.95	238.70	205.70	187.49	-58.25	-51.21	78%	79%
15	259.69	231.17	202.90	181.78	-56.79	-49.38	78%	79%
16	248.00	215.32	193.62	168.93	-54.38	-46.39	78%	78%
17	226.74	188.65	176.17	146.87	-50.58	-41.78	78%	78%
18	192.87	147.57	148.50	113.60	-44.37	-33.97	77%	77%
19	142.03	86.99	108.12	66.10	-33.92	-20.88	76%	76%
20	68.25	0.00	51.32	0.00	-16.93	0.00	75%	

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Nonsmoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 13.35		Alpha = 10.87		Alpha = -2.48		Alpha = 81%	
	Beta = 34.23		Beta = 25.05		Beta = -9.18		Beta = 73%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	6.67	0.00	5.43	0.00	-1.24	0.00	81%	
2	27.37	20.51	19.49	13.93	-7.88	-6.58	71%	68%
3	47.77	40.80	33.30	27.61	-14.47	-13.19	70%	68%
4	67.98	60.92	46.80	40.94	-21.18	-19.98	69%	67%
5	87.99	80.82	59.91	53.82	-28.08	-27.00	68%	67%
6	107.67	100.30	72.49	66.12	-35.18	-34.19	67%	66%
7	126.81	119.09	84.40	77.63	-42.41	-41.46	67%	65%
8	145.03	136.74	95.42	88.16	-49.62	-48.59	66%	64%
9	161.86	152.74	105.37	97.53	-56.49	-55.21	65%	64%
10	176.75	166.54	114.05	105.52	-62.71	-61.02	65%	63%
11	189.19	177.62	121.20	111.84	-67.99	-65.78	64%	63%
12	198.65	185.45	126.54	116.18	-72.11	-69.27	64%	63%
13	204.59	189.50	129.70	118.17	-74.89	-71.33	63%	62%
14	206.41	189.09	130.27	117.32	-76.14	-71.77	63%	62%
15	203.31	183.29	127.76	113.15	-75.55	-70.14	63%	62%
16	194.11	170.70	121.58	104.95	-72.53	-65.75	63%	61%
17	177.13	149.34	110.45	90.90	-66.68	-58.44	62%	61%
18	150.02	116.47	92.77	69.59	-57.25	-46.88	62%	60%
19	109.51	68.31	67.30	39.96	-42.21	-28.35	61%	58%
20	51.27	0.00	32.51	0.00	-18.77	0.00	63%	

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Nonsmoker -- Ultimate -- Female**



Male -- Issue Age 25 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.10		Alpha = 1.60		Alpha = -0.50		Alpha = 76%	
	Beta = 2.79		Beta = 2.16		Beta = -0.63		Beta = 77%	
Duration	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.05	0.00	0.80	0.00	-0.25	0.00	76%	
2	1.78	0.78	1.33	0.50	-0.46	-0.28	74%	64%
3	2.60	1.62	1.79	0.93	-0.80	-0.70	69%	57%
4	3.47	2.53	2.22	1.36	-1.25	-1.17	64%	54%
5	4.38	3.45	2.67	1.83	-1.71	-1.62	61%	53%
6	5.31	4.38	3.15	2.32	-2.15	-2.05	59%	53%
7	6.22	5.27	3.66	2.84	-2.56	-2.43	59%	54%
8	7.10	6.14	4.18	3.37	-2.92	-2.78	59%	55%
9	7.94	6.94	4.69	3.86	-3.24	-3.08	59%	56%
10	8.69	7.65	5.16	4.31	-3.52	-3.33	59%	56%
11	9.33	8.23	5.59	4.72	-3.74	-3.51	60%	57%
12	9.84	8.66	5.96	5.04	-3.88	-3.62	61%	58%
13	10.16	8.88	6.22	5.24	-3.94	-3.63	61%	59%
14	10.25	8.84	6.34	5.29	-3.91	-3.55	62%	60%
15	10.06	8.49	6.30	5.16	-3.75	-3.33	63%	61%
16	9.53	7.78	6.07	4.83	-3.46	-2.96	64%	62%
17	8.60	6.63	5.59	4.21	-3.01	-2.42	65%	63%
18	7.21	5.00	4.81	3.25	-2.40	-1.75	67%	65%
19	5.30	2.81	3.64	1.88	-1.65	-0.93	69%	67%
20	2.80	0.00	2.02	0.00	-0.78	0.00	72%	

Female -- Issue Age 25 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.26		Alpha = 0.75		Alpha = -0.51		Alpha = 60%	
	Beta = 2.06		Beta = 1.44		Beta = -0.62		Beta = 70%	
Duration	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.63	0.00	0.38	0.00	-0.25	0.00	60%	
2	1.42	0.78	1.06	0.68	-0.36	-0.10	75%	87%
3	2.19	1.55	1.72	1.33	-0.47	-0.23	79%	85%
4	2.96	2.32	2.36	1.95	-0.61	-0.37	80%	84%
5	3.72	3.06	2.96	2.53	-0.76	-0.53	80%	83%
6	4.45	3.77	3.54	3.10	-0.91	-0.67	80%	82%
7	5.14	4.45	4.08	3.61	-1.06	-0.84	79%	81%
8	5.80	5.09	4.56	4.06	-1.24	-1.02	79%	80%
9	6.41	5.68	4.98	4.45	-1.44	-1.23	78%	78%
10	6.97	6.20	5.31	4.74	-1.65	-1.46	76%	76%
11	7.45	6.65	5.54	4.90	-1.91	-1.75	74%	74%
12	7.84	6.97	5.64	4.95	-2.20	-2.03	72%	71%
13	8.08	7.12	5.62	4.85	-2.45	-2.27	70%	68%
14	8.12	7.06	5.48	4.66	-2.64	-2.40	67%	66%
15	7.93	6.75	5.22	4.34	-2.71	-2.41	66%	64%
16	7.48	6.15	4.83	3.88	-2.65	-2.27	65%	63%
17	6.70	5.19	4.29	3.26	-2.41	-1.93	64%	63%
18	5.55	3.86	3.57	2.43	-1.98	-1.43	64%	63%
19	4.02	2.14	2.62	1.36	-1.41	-0.78	65%	64%
20	2.10	0.00	1.40	0.00	-0.70	0.00	67%	

Male -- Issue Age 35 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 2.58		Alpha = 1.96		Alpha = -0.62		Alpha = 76%	
	Beta = 5.98		Beta = 4.21		Beta = -1.76		Beta = 70%	
Duration	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	1.29	0.00	0.98	0.00	-0.31	0.00	76%	
2	4.68	3.37	3.23	2.25	-1.45	-1.13	69%	67%
3	8.01	6.67	5.47	4.47	-2.55	-2.20	68%	67%
4	11.26	9.87	7.66	6.64	-3.60	-3.23	68%	67%
5	14.38	12.91	9.79	8.73	-4.59	-4.19	68%	68%
6	17.33	15.76	11.83	10.71	-5.50	-5.05	68%	68%
7	20.04	18.35	13.73	12.53	-6.32	-5.82	68%	68%
8	22.49	20.65	15.44	14.13	-7.05	-6.51	69%	68%
9	24.60	22.59	16.90	15.45	-7.71	-7.14	69%	68%
10	26.35	24.13	18.03	16.39	-8.32	-7.74	68%	68%
11	27.65	25.19	18.77	16.93	-8.88	-8.26	68%	67%
12	28.46	25.74	19.10	17.06	-9.35	-8.68	67%	66%
13	28.71	25.71	19.00	16.73	-9.71	-8.98	66%	65%
14	28.36	25.03	18.53	16.12	-9.83	-8.91	65%	64%
15	27.30	23.58	17.75	15.17	-9.54	-8.41	65%	64%
16	25.43	21.29	16.56	13.74	-8.87	-7.56	65%	65%
17	22.62	17.98	14.83	11.71	-7.80	-6.27	66%	65%
18	18.72	13.48	12.39	8.86	-6.33	-4.62	66%	66%
19	13.51	7.56	9.06	5.04	-4.45	-2.52	67%	67%

Female -- Issue Age 35 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.90		Alpha = 1.50		Alpha = -0.40		Alpha = 79%	
	Beta = 4.27		Beta = 3.30		Beta = -0.97		Beta = 77%	
Duration	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	0.95	0.00	0.75	0.00	-0.20	0.00	79%	
2	3.29	2.32	2.53	1.76	-0.76	-0.56	77%	76%
3	5.57	4.56	4.26	3.46	-1.31	-1.10	76%	76%
4	7.76	6.69	5.95	5.15	-1.80	-1.54	77%	77%
5	9.81	8.67	7.62	6.79	-2.19	-1.88	78%	78%
6	11.71	10.48	9.24	8.39	-2.47	-2.09	79%	80%
7	13.39	12.04	10.81	9.93	-2.58	-2.11	81%	82%
8	14.83	13.36	12.29	11.36	-2.54	-2.00	83%	85%
9	16.02	14.42	13.66	12.66	-2.36	-1.76	85%	88%
10	16.95	15.21	14.87	13.79	-2.07	-1.42	88%	91%
11	17.58	15.70	15.89	14.69	-1.70	-1.00	90%	94%
12	17.92	15.87	16.67	15.34	-1.25	-0.53	93%	97%
13	17.91	15.68	17.14	15.64	-0.77	-0.05	96%	100%
14	17.53	15.12	17.21	15.47	-0.33	0.36	98%	102%
15	16.75	14.11	16.77	14.76	0.02	0.65	100%	105%
16	15.48	12.59	15.74	13.43	0.26	0.84	102%	107%
17	13.68	10.51	14.05	11.38	0.37	0.87	103%	108%
18	11.29	7.80	11.60	8.53	0.32	0.73	103%	109%
19	8.19	4.31	8.30	4.78	0.11	0.46	101%	111%

20	6.77	0.00	4.63	0.00	-2.14	0.00	68%
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20	4.29	0.00	4.04	0.00	-0.25	0.00	94%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 6.15 Beta = 14.20		Alpha = 4.48 Beta = 10.10		Alpha = -1.67 Beta = -4.10		Alpha = 73% Beta = 71%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	3.08	0.00	2.24	0.00	-0.84	0.00	73%	
2	11.03	7.86	7.77	5.45	-3.26	-2.41	70%	69%
3	18.78	15.51	13.12	10.70	-5.66	-4.81	70%	69%
4	26.31	22.91	18.37	15.94	-7.94	-6.97	70%	70%
5	33.55	29.98	23.60	21.15	-9.95	-8.83	70%	71%
6	40.43	36.68	28.72	26.20	-11.70	-10.48	71%	71%
7	46.87	42.86	33.64	30.99	-13.23	-11.87	72%	72%
8	52.74	48.43	38.21	35.34	-14.53	-13.09	72%	73%
9	57.91	53.20	42.28	39.13	-15.63	-14.07	73%	74%
10	62.20	57.01	45.68	42.14	-16.52	-14.87	73%	74%
11	65.47	59.73	48.22	44.20	-17.25	-15.52	74%	74%
12	67.56	61.19	49.78	45.25	-17.78	-15.94	74%	74%
13	68.32	61.26	50.25	45.16	-18.07	-16.10	74%	74%
14	67.61	59.76	49.68	44.11	-17.93	-15.65	73%	74%
15	65.23	56.51	48.05	41.90	-17.18	-14.61	74%	74%
16	60.95	51.20	45.11	38.22	-15.84	-12.98	74%	75%
17	54.41	43.43	40.48	32.64	-13.93	-10.78	74%	75%
18	45.17	32.71	33.71	24.68	-11.46	-8.04	75%	75%
19	32.68	18.45	24.33	13.90	-8.35	-4.56	74%	75%
20	16.33	0.00	12.00	0.00	-4.33	0.00	73%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 4.52 Beta = 8.68		Alpha = 3.07 Beta = 8.36		Alpha = -1.45 Beta = -0.31		Alpha = 68% Beta = 96%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	2.26	0.00	1.53	0.00	-0.73	0.00	68%	
2	6.34	4.00	6.80	5.24	0.46	1.23	107%	131%
3	10.26	7.84	11.97	10.34	1.71	2.50	117%	132%
4	14.00	11.49	16.96	15.21	2.95	3.72	121%	132%
5	17.55	14.92	21.68	19.79	4.14	4.87	124%	133%
6	20.83	18.06	26.09	24.02	5.25	5.95	125%	133%
7	23.82	20.90	30.10	27.82	6.28	6.92	126%	133%
8	26.47	23.36	33.66	31.14	7.19	7.77	127%	133%
9	28.69	25.34	36.69	33.89	8.00	8.55	128%	134%
10	30.41	26.80	39.12	35.99	8.72	9.19	129%	134%
11	31.57	27.68	40.86	37.36	9.28	9.69	129%	135%
12	32.15	27.95	41.82	37.92	9.67	9.97	130%	136%
13	32.12	27.61	41.91	37.54	9.79	9.93	130%	136%
14	31.48	26.67	41.06	36.21	9.58	9.54	130%	136%
15	30.20	25.06	39.17	33.77	8.97	8.71	130%	135%
16	28.22	22.70	36.12	30.11	7.90	7.41	128%	133%
17	25.35	19.32	31.79	25.10	6.44	5.77	125%	130%
18	21.35	14.70	25.98	18.50	4.63	3.81	122%	126%
19	15.86	8.35	18.54	10.21	2.67	1.85	117%	122%
20	8.51	0.00	9.28	0.00	0.77	0.00	109%	

Male -- Issue Age 55 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 14.92 Beta = 32.40		Alpha = 10.39 Beta = 23.46		Alpha = -4.54 Beta = -8.94		Alpha = 70% Beta = 72%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	7.46	0.00	5.19	0.00	-2.27	0.00	70%	
2	24.65	16.89	18.01	12.56	-6.64	-4.34	73%	74%
3	41.30	33.31	30.30	24.60	-11.00	-8.72	73%	74%
4	57.44	49.17	42.22	36.38	-15.22	-12.79	73%	74%
5	73.00	64.43	53.80	47.77	-19.20	-16.66	74%	74%
6	87.87	78.92	64.88	58.53	-22.99	-20.38	74%	74%
7	101.86	92.41	75.17	68.35	-26.69	-24.06	74%	74%
8	114.72	104.63	84.33	76.85	-30.39	-27.78	74%	73%
9	126.15	115.27	92.04	83.77	-34.11	-31.50	73%	73%
10	135.82	123.98	98.11	88.98	-37.72	-35.00	72%	72%
11	143.41	130.44	102.43	92.41	-40.98	-38.02	71%	71%
12	148.60	134.36	104.94	94.02	-43.65	-40.34	71%	70%
13	151.07	135.39	105.60	93.72	-45.47	-41.67	70%	69%
14	150.47	133.16	104.22	91.26	-46.26	-41.90	69%	69%
15	146.33	127.11	100.59	86.46	-45.75	-40.66	69%	68%
16	137.96	116.42	94.28	78.64	-43.68	-37.77	68%	68%
17	124.41	100.02	84.68	67.25	-39.74	-32.77	68%	67%
18	104.43	76.44	70.76	50.81	-33.67	-25.63	68%	66%
19	76.34	43.83	51.46	28.66	-24.87	-15.17	67%	65%

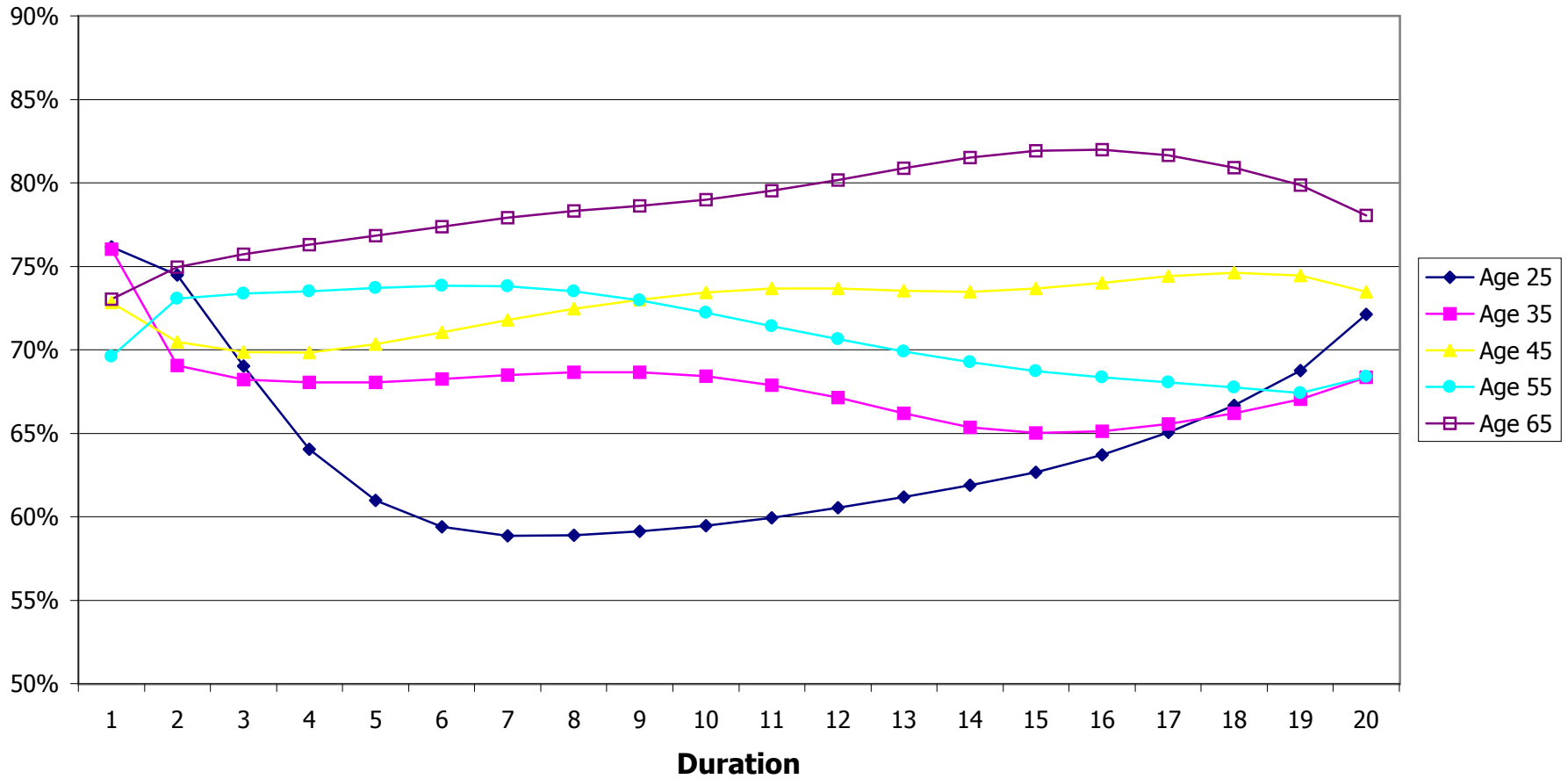
Female -- Issue Age 55 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 9.24 Beta = 17.92		Alpha = 8.92 Beta = 19.01		Alpha = -0.32 Beta = 1.09		Alpha = 97% Beta = 106%	
	Reserve		Reserve		Reserve		Reserve	
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal
1	4.62	0.00	4.46	0.00	-0.16	0.00	97%	
2	13.18	8.44	14.33	9.66	1.15	1.21	109%	114%
3	21.54	16.72	23.77	18.87	2.23	2.15	110%	113%
4	29.76	24.87	32.77	27.66	3.01	2.79	110%	111%
5	37.84	32.89	41.29	35.92	3.45	3.03	109%	109%
6	45.75	40.70	49.25	43.59	3.50	2.89	108%	107%
7	53.37	48.11	56.60	50.61	3.24	2.49	106%	105%
8	60.49	54.95	63.22	56.82	2.73	1.87	105%	103%
9	66.85	60.83	69.01	62.19	2.16	1.36	103%	102%
10	72.15	65.55	73.90	66.60	1.75	1.05	102%	102%
11	76.17	68.87	77.75	69.89	1.58	1.02	102%	101%
12	78.76	70.72	80.40	71.90	1.64	1.17	102%	102%
13	79.79	70.94	81.63	72.35	1.84	1.41	102%	102%
14	79.22	69.57	81.17	70.98	1.95	1.40	102%	102%
15	76.90	66.31	78.73	67.48	1.83	1.16	102%	102%
16	72.56	60.89	73.96	61.43	1.39	0.54	102%	101%
17	65.68	52.55	66.36	52.28	0.68	-0.27	101%	99%
18	55.43	40.38	55.36	39.44	-0.06	-0.94	100%	98%
19	40.79	23.29	40.37	22.29	-0.42	-1.00	99%	96%

20	38.11	0.00	26.06	0.00	-12.05	0.00	68%	20	20.60	0.00	20.65	0.00	0.05	0.00	100%
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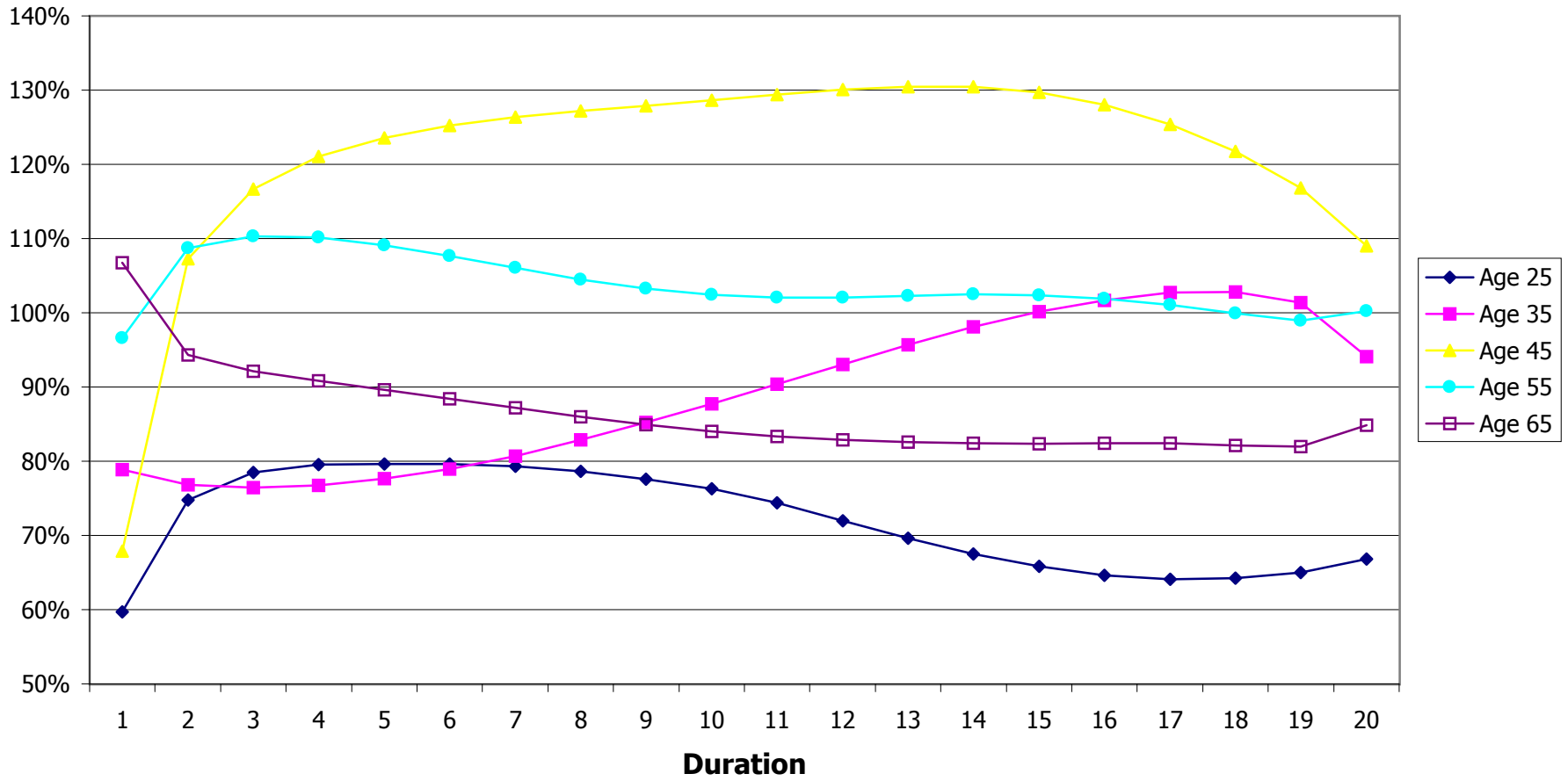
Male -- Issue Age 65 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	36.15	Alpha =	26.40	Alpha =	-9.75	Alpha =	73%	
	Beta =	68.40	Beta =	50.80	Beta =	-17.60	Beta =	74%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	18.08	0.00	13.20	0.00	-4.88	0.00	73%		
2	49.62	30.84	37.20	23.59	-12.43	-7.25	75%	76%	
3	80.04	60.83	60.60	46.81	-19.44	-14.02	76%	77%	
4	109.62	90.00	83.63	69.63	-25.99	-20.36	76%	77%	
5	138.33	118.25	106.29	92.14	-32.04	-26.11	77%	78%	
6	166.00	145.34	128.45	113.96	-37.54	-31.38	77%	78%	
7	192.35	170.96	149.84	134.92	-42.51	-36.04	78%	79%	
8	216.98	194.60	169.90	154.08	-47.08	-40.52	78%	79%	
9	239.35	215.70	188.15	171.42	-51.20	-44.28	79%	79%	
10	258.90	233.71	204.54	186.85	-54.37	-46.86	79%	80%	
11	274.98	247.86	218.68	199.71	-56.30	-48.15	80%	81%	
12	286.92	257.59	230.04	209.57	-56.88	-48.02	80%	81%	
13	294.14	262.29	237.93	215.48	-56.21	-46.80	81%	82%	
14	295.95	261.20	241.25	216.22	-54.69	-44.98	82%	83%	
15	291.36	253.11	238.64	210.25	-52.72	-42.86	82%	83%	
16	278.79	236.07	228.53	196.00	-50.26	-40.07	82%	83%	
17	255.86	207.25	208.89	170.97	-46.97	-36.27	82%	82%	
18	219.09	162.54	177.25	132.73	-41.84	-29.80	81%	82%	
19	163.51	96.08	130.56	77.59	-32.95	-18.49	80%	81%	
20	82.24	0.00	64.20	0.00	-18.05	0.00	78%		

Female -- Issue Age 65 -- 20 Year Level Premium Term -- Smoker -- Ultimate -- 4.50%									
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO		
	Alpha =	18.83	Alpha =	20.10	Alpha =	1.27	Alpha =	107%	
	Beta =	41.47	Beta =	40.27	Beta =	-1.20	Beta =	97%	
	Reserve		Reserve		Reserve		Reserve		
	Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	9.42	0.00	10.05	0.00	0.63	0.00	107%		
2	31.78	22.09	29.99	19.70	-1.79	-2.39	94%	89%	
3	53.70	43.84	49.48	38.98	-4.22	-4.86	92%	89%	
4	75.39	65.47	68.48	57.71	-6.91	-7.76	91%	88%	
5	96.90	86.85	86.87	75.76	-10.03	-11.10	90%	87%	
6	118.13	107.94	104.47	92.91	-13.66	-15.03	88%	86%	
7	138.83	128.25	121.03	108.88	-17.80	-19.37	87%	85%	
8	158.50	147.28	136.27	123.38	-22.23	-23.90	86%	84%	
9	176.58	164.41	149.92	136.18	-26.66	-28.23	85%	83%	
10	192.46	179.05	161.68	146.92	-30.78	-32.13	84%	82%	
11	205.58	190.65	171.33	155.46	-34.26	-35.19	83%	82%	
12	215.40	198.68	178.55	161.36	-36.85	-37.31	83%	81%	
13	221.38	202.62	182.89	164.15	-38.49	-38.47	83%	81%	
14	222.96	201.83	183.81	163.20	-39.15	-38.63	82%	81%	
15	219.33	195.35	180.62	157.77	-38.71	-37.59	82%	81%	
16	209.28	181.74	172.47	146.91	-36.81	-34.83	82%	81%	
17	191.06	158.92	157.49	127.80	-33.57	-31.12	82%	80%	
18	162.19	124.00	133.23	98.38	-28.97	-25.62	82%	79%	
19	119.26	73.05	97.76	56.86	-21.50	-16.19	82%	78%	
20	57.26	0.00	48.57	0.00	-8.69	0.00	85%		

**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Male**



**Level Premium 20 Year Term Mean Statutory Reserves
Proposed 2001 CSO as a % of 1980 CSO
Smoker -- Ultimate -- Female**



Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.51		Alpha = 1.09		Alpha = -0.43		Alpha = 72%	
	Beta = 7.26		Beta = 5.07		Beta = -2.20		Beta = 70%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.76	0.00	0.54	0.00	-0.21	0.00	72%	
2	6.30	5.33	4.46	3.85	-1.83	-1.47	71%	72%
3	11.44	10.29	8.26	7.60	-3.18	-2.69	72%	74%
4	16.27	14.98	11.96	11.25	-4.31	-3.73	74%	75%
5	20.90	19.55	15.53	14.74	-5.37	-4.81	74%	75%
6	25.40	23.99	18.91	18.01	-6.49	-5.98	74%	75%
7	29.77	28.29	22.02	20.97	-7.75	-7.31	74%	74%
8	33.97	32.40	24.82	23.60	-9.15	-8.80	73%	73%
9	38.01	36.36	27.27	25.86	-10.75	-10.50	72%	71%
10	41.78	39.93	29.34	27.74	-12.44	-12.19	70%	69%
11	45.01	42.83	30.95	29.10	-14.06	-13.73	69%	68%
12	47.51	44.92	31.93	29.69	-15.58	-15.23	67%	66%
13	49.01	45.84	32.17	29.59	-16.84	-16.25	66%	65%
14	49.37	45.63	31.76	28.86	-17.61	-16.78	64%	63%
15	48.50	44.11	30.66	27.39	-17.85	-16.72	63%	62%
16	46.03	40.69	28.66	24.87	-17.37	-15.82	62%	61%
17	41.55	35.16	25.49	21.06	-16.06	-14.10	61%	60%
18	34.65	26.88	20.94	15.77	-13.71	-11.12	60%	59%
19	24.80	15.46	14.82	8.80	-9.98	-6.66	60%	57%
20	11.36	0.00	6.93	0.00	-4.43	0.00	61%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	1980 CSO		Proposed 2001 CSO		2001 CSO - 1980 CSO		2001 CSO / 1980 CSO	
	Alpha = 1.08		Alpha = 0.93		Alpha = -0.15		Alpha = 86%	
	Beta = 4.67		Beta = 4.17		Beta = -0.51		Beta = 89%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.54	0.00	0.46	0.00	-0.08	0.00	86%	
2	4.04	3.41	3.66	3.15	-0.38	-0.26	91%	92%
3	7.36	6.63	6.76	6.20	-0.60	-0.43	92%	93%
4	10.49	9.66	9.74	9.12	-0.74	-0.55	93%	94%
5	13.42	12.50	12.58	11.88	-0.84	-0.62	94%	95%
6	16.16	15.14	15.24	14.44	-0.91	-0.70	94%	95%
7	18.68	17.55	17.70	16.79	-0.98	-0.76	95%	96%
8	20.95	19.67	19.91	18.86	-1.04	-0.81	95%	96%
9	22.95	21.56	21.83	20.62	-1.13	-0.94	95%	96%
10	24.67	23.11	23.41	22.02	-1.26	-1.08	95%	95%
11	26.03	24.28	24.60	23.01	-1.43	-1.27	95%	95%
12	27.03	25.11	25.36	23.53	-1.68	-1.58	94%	94%
13	27.61	25.43	25.59	23.48	-2.02	-1.95	93%	92%
14	27.52	24.94	25.22	22.80	-2.30	-2.14	92%	91%
15	26.74	23.87	24.19	21.41	-2.56	-2.47	90%	90%
16	25.25	21.95	22.39	19.20	-2.86	-2.75	89%	87%
17	22.79	18.96	19.71	16.06	-3.08	-2.90	86%	85%
18	19.07	14.51	16.06	11.89	-3.02	-2.62	84%	82%
19	13.75	8.32	11.32	6.58	-2.44	-1.74	82%	79%
20	6.50	0.00	5.37	0.00	-1.12	0.00	83%	

Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 2.17		Alpha = 2.60		Alpha = 0.42		Alpha = 119%	
	Beta = 5.30		Beta = 6.08		Beta = 0.79		Beta = 115%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	1.09	0.00	1.30	0.00	0.21	0.00	119%	
2	4.17	3.04	4.74	3.39	0.57	0.35	114%	112%
3	7.16	5.98	8.07	6.67	0.91	0.69	113%	112%
4	10.10	8.93	11.35	9.95	1.25	1.02	112%	111%
5	13.04	11.86	14.61	13.19	1.56	1.32	112%	111%
6	15.95	14.73	17.81	16.34	1.86	1.61	112%	111%
7	18.75	17.47	20.89	19.35	2.14	1.88	111%	111%
8	21.37	19.98	23.76	22.09	2.39	2.11	111%	111%
9	23.74	22.20	26.34	24.51	2.60	2.30	111%	110%
10	25.76	24.01	28.53	26.47	2.77	2.46	111%	110%
11	27.30	25.29	30.21	27.86	2.91	2.57	111%	110%
12	28.28	25.98	31.28	28.61	3.00	2.64	111%	110%
13	28.64	26.00	31.67	28.64	3.03	2.64	111%	110%
14	28.39	25.47	31.38	28.04	2.99	2.57	111%	110%
15	27.51	24.26	30.40	26.68	2.89	2.42	110%	110%
16	25.86	22.18	28.56	24.36	2.70	2.18	110%	110%
17	23.23	18.98	25.63	20.82	2.41	1.84	110%	110%
18	19.32	14.37	21.33	15.75	2.00	1.38	110%	110%
19	13.89	8.10	15.35	8.87	1.47	0.77	111%	109%

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Ultimate -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 1.46		Alpha = 1.83		Alpha = 0.37		Alpha = 126%	
	Beta = 4.15		Beta = 4.83		Beta = 0.69		Beta = 117%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.73	0.00	0.92	0.00	0.19	0.00	126%	
2	3.40	2.66	3.89	2.96	0.49	0.30	114%	111%
3	6.02	5.24	6.81	5.83	0.78	0.58	113%	111%
4	8.57	7.74	9.63	8.60	1.07	0.86	112%	111%
5	11.00	10.11	12.33	11.22	1.33	1.11	112%	111%
6	13.28	12.31	14.86	13.66	1.57	1.35	112%	111%
7	15.39	14.32	17.19	15.89	1.80	1.56	112%	111%
8	17.28	16.08	19.28	17.84	2.00	1.75	112%	111%
9	18.89	17.56	21.07	19.47	2.18	1.91	112%	111%
10	20.20	18.71	22.52	20.75	2.32	2.04	111%	111%
11	21.17	19.49	23.60	21.61	2.43	2.12	111%	111%
12	21.73	19.83	24.22	21.99	2.49	2.17	111%	111%
13	21.82	19.67	24.32	21.82	2.51	2.16	111%	111%
14	21.38	18.94	23.84	21.03	2.47	2.09	112%	111%
15	20.37	17.64	22.73	19.60	2.37	1.96	112%	111%
16	18.75	15.71	20.95	17.46	2.20	1.76	112%	111%
17	16.46	13.06	18.41	14.53	1.96	1.47	112%	111%
18	13.41	9.62	15.04	10.71	1.63	1.09	112%	111%
19	9.54	5.30	10.73	5.91	1.20	0.61	113%	112%

20	6.70	0.00	7.48	0.00	0.78	0.00	112%
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20	4.73	0.00	5.37	0.00	0.65	0.00	114%
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Male -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.68		Alpha = 1.09		Alpha = 0.41		Alpha = 161%	
	Beta = 4.29		Beta = 5.07		Beta = 0.78		Beta = 118%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.34	0.00	0.54	0.00	0.21	0.00	161%	
2	3.89	3.50	4.46	3.85	0.57	0.35	115%	110%
3	7.35	6.91	8.26	7.60	0.91	0.69	112%	110%
4	10.71	10.23	11.96	11.25	1.25	1.02	112%	110%
5	13.96	13.41	15.53	14.74	1.57	1.33	111%	110%
6	17.05	16.40	18.91	18.01	1.86	1.61	111%	110%
7	19.89	19.10	22.02	20.97	2.13	1.87	111%	110%
8	22.45	21.51	24.82	23.60	2.37	2.10	111%	110%
9	24.68	23.57	27.27	25.86	2.58	2.29	110%	110%
10	26.58	25.30	29.34	27.74	2.76	2.45	110%	110%
11	28.06	26.53	30.95	29.10	2.90	2.57	110%	110%
12	28.94	27.06	31.93	29.69	2.99	2.63	110%	110%
13	29.16	26.96	32.17	29.59	3.02	2.63	110%	110%
14	28.78	26.30	31.76	28.86	2.98	2.56	110%	110%
15	27.78	24.98	30.66	27.39	2.87	2.41	110%	110%
16	25.98	22.69	28.66	24.87	2.69	2.18	110%	110%
17	23.10	19.22	25.49	21.06	2.40	1.84	110%	110%
18	18.95	14.39	20.94	15.77	1.99	1.37	111%	110%
19	13.36	8.04	14.82	8.80	1.46	0.77	111%	110%
20	6.16	0.00	6.93	0.00	0.77	0.00	113%	

Female -- Issue Age 45 -- 20 Year Level Premium Term -- Composite -- Select & Ult -- 4.50%								
Duration	2001 VBT		Proposed 2001 CSO		2001 CSO - 2001 VBT		2001 CSO / 2001 VBT	
	Alpha = 0.56		Alpha = 0.93		Alpha = 0.37		Alpha = 167%	
	Beta = 3.48		Beta = 4.17		Beta = 0.68		Beta = 120%	
	Reserve		Reserve		Reserve		Reserve	
Mean	Terminal	Mean	Terminal	Mean	Terminal	Mean	Terminal	
1	0.28	0.00	0.46	0.00	0.19	0.00	167%	
2	3.17	2.85	3.66	3.15	0.49	0.30	115%	110%
3	5.98	5.61	6.76	6.20	0.78	0.59	113%	110%
4	8.68	8.26	9.74	9.12	1.06	0.86	112%	110%
5	11.25	10.76	12.58	11.88	1.33	1.12	112%	110%
6	13.66	13.08	15.24	14.44	1.58	1.36	112%	110%
7	15.89	15.22	17.70	16.79	1.81	1.57	111%	110%
8	17.90	17.10	19.91	18.86	2.01	1.76	111%	110%
9	19.65	18.71	21.83	20.62	2.18	1.91	111%	110%
10	21.09	19.99	23.41	22.02	2.32	2.04	111%	110%
11	22.18	20.90	24.60	23.01	2.42	2.12	111%	110%
12	22.87	21.36	25.36	23.53	2.48	2.16	111%	110%
13	23.09	21.32	25.59	23.48	2.50	2.15	111%	110%
14	22.76	20.71	25.22	22.80	2.47	2.09	111%	110%
15	21.81	19.44	24.19	21.41	2.37	1.97	111%	110%
16	20.18	17.43	22.39	19.20	2.21	1.76	111%	110%
17	17.75	14.58	19.71	16.06	1.96	1.48	111%	110%
18	14.42	10.79	16.06	11.89	1.63	1.10	111%	110%
19	10.12	5.96	11.32	6.58	1.20	0.61	112%	110%
20	4.72	0.00	5.37	0.00	0.65	0.00	114%	

Male -- Issue Age 35 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.31	0.21	-0.10	67%
5	13.71	11.86	-1.85	87%
10	39.54	39.54	0.00	100%
15	75.45	75.45	0.00	100%
20	116.89	116.89	0.00	100%
25	166.71	166.71	0.00	100%
30	226.66	226.66	0.00	100%
35	298.15	298.15	0.00	100%
40	375.96	375.96	0.00	100%
45	471.15	471.15	0.00	100%
50	587.21	587.21	0.00	100%
55	727.70	727.70	0.00	100%
60	917.33	917.33	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.24	0.16	-0.08	65%
5	10.86	9.78	-1.08	90%
10	31.72	31.72	0.00	100%
15	59.72	59.72	0.00	100%
20	91.70	91.70	0.00	100%
25	130.80	130.80	0.00	100%
30	177.97	177.97	0.00	100%
35	236.84	236.84	0.00	100%
40	307.19	307.19	0.00	100%
45	388.84	388.84	0.00	100%
50	482.17	482.17	0.00	100%
55	584.83	584.83	0.00	100%
60	695.78	695.78	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.71	0.51	-0.20	72%
5	23.88	20.61	-3.27	86%
10	69.99	69.99	0.00	100%
15	124.35	124.35	0.00	100%
20	183.58	183.58	0.00	100%
25	253.13	253.13	0.00	100%
30	326.12	326.12	0.00	100%
35	411.69	411.69	0.00	100%
40	508.68	508.68	0.00	100%
45	619.41	619.41	0.00	100%
50	743.25	743.25	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.58	0.35	-0.23	60%
5	18.28	17.08	-1.20	93%
10	54.41	54.41	0.00	100%
15	96.30	96.30	0.00	100%
20	142.62	142.62	0.00	100%
25	199.92	199.92	0.00	100%
30	267.23	267.23	0.00	100%
35	342.98	342.98	0.00	100%
40	424.41	424.41	0.00	100%
45	503.45	503.45	0.00	100%
50	575.23	575.23	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.79	1.25	-0.54	70%
5	38.29	33.34	-4.95	87%
10	111.96	111.96	0.00	100%
15	187.65	187.65	0.00	100%
20	259.76	259.76	0.00	100%
25	341.07	341.07	0.00	100%
30	425.26	425.26	0.00	100%
35	508.20	508.20	0.00	100%
40	584.58	584.58	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.20	0.98	-0.22	82%
5	28.31	25.05	-3.26	88%
10	86.33	86.33	0.00	100%
15	149.70	149.70	0.00	100%
20	216.77	216.77	0.00	100%
25	290.38	290.38	0.00	100%
30	365.29	365.29	0.00	100%
35	426.49	426.49	0.00	100%
40	460.99	460.99	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	4.53	3.32	-1.21	73%
5	48.44	42.34	-6.10	87%
10	134.01	134.01	0.00	100%
15	224.59	224.59	0.00	100%
20	301.12	301.12	0.00	100%
25	359.58	359.58	0.00	100%
30	376.94	376.94	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Composite -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.38	2.09	-0.29	88%
5	38.61	32.56	-6.05	84%
10	118.96	118.96	0.00	100%
15	199.92	199.92	0.00	100%
20	270.29	270.29	0.00	100%
25	319.29	319.29	0.00	100%
30	320.56	320.56	0.00	100%

Male -- Issue Age 35 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.27	0.17	-0.09	65%
5	12.78	11.10	-1.68	87%
10	37.43	37.43	0.00	100%
15	70.62	70.62	0.00	100%
20	108.84	108.84	0.00	100%
25	155.04	155.04	0.00	100%
30	210.85	210.85	0.00	100%
35	277.40	277.40	0.00	100%
40	349.47	349.47	0.00	100%
45	435.48	435.48	0.00	100%
50	534.91	534.91	0.00	100%
55	653.87	653.87	0.00	100%
60	820.32	820.32	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.22	0.13	-0.08	61%
5	10.11	8.89	-1.22	88%
10	29.88	29.88	0.00	100%
15	55.72	55.72	0.00	100%
20	85.08	85.08	0.00	100%
25	121.14	121.14	0.00	100%
30	164.80	164.80	0.00	100%
35	219.29	219.29	0.00	100%
40	284.21	284.21	0.00	100%
45	358.62	358.62	0.00	100%
50	440.44	440.44	0.00	100%
55	522.01	522.01	0.00	100%
60	602.88	602.88	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.59	0.42	-0.18	70%
5	22.70	19.66	-3.04	87%
10	65.16	65.16	0.00	100%
15	115.37	115.37	0.00	100%
20	170.40	170.40	0.00	100%
25	235.17	235.17	0.00	100%
30	303.17	303.17	0.00	100%
35	381.52	381.52	0.00	100%
40	465.60	465.60	0.00	100%
45	551.98	551.98	0.00	100%
50	643.74	643.74	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.50	0.28	-0.21	57%
5	17.36	15.74	-1.62	91%
10	50.48	50.48	0.00	100%
15	89.08	89.08	0.00	100%
20	131.90	131.90	0.00	100%
25	184.91	184.91	0.00	100%
30	247.15	247.15	0.00	100%
35	316.62	316.62	0.00	100%
40	389.03	389.03	0.00	100%
45	451.22	451.22	0.00	100%
50	489.88	489.88	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.47	1.04	-0.43	71%
5	36.87	32.10	-4.77	87%
10	104.79	104.79	0.00	100%
15	174.93	174.93	0.00	100%
20	242.21	242.21	0.00	100%
25	317.39	317.39	0.00	100%
30	392.56	392.56	0.00	100%
35	456.70	456.70	0.00	100%
40	493.71	493.71	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.04	0.79	-0.25	76%
5	27.40	23.67	-3.73	86%
10	80.79	80.79	0.00	100%
15	139.24	139.24	0.00	100%
20	201.16	201.16	0.00	100%
25	268.88	268.88	0.00	100%
30	336.43	336.43	0.00	100%
35	386.34	386.34	0.00	100%
40	395.78	395.78	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	3.76	2.76	-1.00	73%
5	46.63	40.73	-5.90	87%
10	124.40	124.40	0.00	100%
15	207.72	207.72	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Nonsmoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.06	1.68	-0.38	81%
5	37.28	30.84	-6.44	83%
10	110.71	110.71	0.00	100%
15	184.76	184.76	0.00	100%

20	277.29	277.29	0.00	100%	20	248.39	248.39	0.00	100%
25	326.31	326.31	0.00	100%	25	290.06	290.06	0.00	100%
30	325.39	325.39	0.00	100%	30	281.66	281.66	0.00	100%

Male -- Issue Age 35 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.54	0.41	-0.13	76%
5	19.42	16.43	-2.99	85%
10	52.52	52.52	0.00	100%
15	105.17	105.17	0.00	100%
20	166.38	166.38	0.00	100%
25	238.36	238.36	0.00	100%
30	323.77	323.77	0.00	100%
35	425.57	425.57	0.00	100%
40	538.70	538.70	0.00	100%
45	690.22	690.22	0.00	100%
50	908.46	908.46	0.00	100%
55	1181.18	1181.18	0.00	100%
60	1513.27	1513.27	0.00	100%

Female -- Issue Age 35 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.41	0.32	-0.09	79%
5	15.48	15.24	-0.24	98%
10	43.00	43.00	0.00	100%
15	84.30	84.30	0.00	100%
20	132.35	132.35	0.00	100%
25	190.15	190.15	0.00	100%
30	258.84	258.84	0.00	100%
35	344.66	344.66	0.00	100%
40	448.35	448.35	0.00	100%
45	574.44	574.44	0.00	100%
50	738.56	738.56	0.00	100%
55	970.73	970.73	0.00	100%
60	1266.48	1266.48	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.43	1.04	-0.39	73%
5	31.14	26.52	-4.62	85%
10	99.72	99.72	0.00	100%
15	179.55	179.55	0.00	100%
20	264.55	264.55	0.00	100%
25	363.46	363.46	0.00	100%
30	467.09	467.09	0.00	100%
35	597.00	597.00	0.00	100%
40	773.33	773.33	0.00	100%
45	1033.64	1033.64	0.00	100%
50	1354.55	1354.55	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	1.08	0.73	-0.35	68%
5	23.96	23.96	0.00	100%
10	78.57	78.57	0.00	100%
15	140.64	140.64	0.00	100%
20	208.48	208.48	0.00	100%
25	292.10	292.10	0.00	100%
30	390.58	390.58	0.00	100%
35	504.87	504.87	0.00	100%
40	641.72	641.72	0.00	100%
45	824.27	824.27	0.00	100%
50	1099.52	1099.52	0.00	100%

Male -- Issue Age 55 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	3.71	2.58	-1.13	70%
5	47.01	40.95	-6.06	87%
10	156.01	156.01	0.00	100%
15	265.76	265.76	0.00	100%
20	367.59	367.59	0.00	100%
25	486.53	486.53	0.00	100%
30	626.14	626.14	0.00	100%
35	824.52	824.52	0.00	100%
40	1142.78	1142.78	0.00	100%

Female -- Issue Age 55 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	2.18	2.11	-0.07	97%
5	33.95	33.49	-0.46	99%
10	120.40	120.40	0.00	100%
15	214.02	214.02	0.00	100%
20	312.72	312.72	0.00	100%
25	422.40	422.40	0.00	100%
30	542.61	542.61	0.00	100%
35	673.12	673.12	0.00	100%
40	861.61	861.61	0.00	100%

Male -- Issue Age 65 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	9.29	6.82	-2.47	73%
5	59.57	52.15	-7.42	88%
10	193.01	193.01	0.00	100%
15	328.20	328.20	0.00	100%

Female -- Issue Age 65 -- Level Premium to 0 UL -- Smoker -- Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	4.33	4.61	0.28	107%
5	46.80	43.03	-3.77	92%
10	169.65	169.65	0.00	100%
15	293.03	293.03	0.00	100%

20	447.54	447.54	0.00	100%	20	404.82	404.82	0.00	100%
25	563.97	563.97	0.00	100%	25	498.81	498.81	0.00	100%
30	693.60	693.60	0.00	100%	30	559.54	559.54	0.00	100%

Male -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Select & Ultimate -- 4.50%				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.46	0.21	-0.25	46%
5	24.72	21.26	-3.46	86%
10	69.99	69.99	0.00	100%
15	124.35	124.35	0.00	100%
20	183.58	183.58	0.00	100%
25	253.13	253.13	0.00	100%
30	326.12	326.12	0.00	100%
35	411.69	411.69	0.00	100%
40	508.68	508.68	0.00	100%
45	619.41	619.41	0.00	100%
50	743.25	743.25	0.00	100%

Female -- Issue Age 45 -- Level Premium to 0 UL -- Composite -- Select & Ultimate --				
Duration	Mean Reserves			
	1980 CSO	2001 CSO	2001-1980	2001/1980
1	0.46	0.17	-0.29	37%
5	18.67	17.47	-1.20	94%
10	54.41	54.41	0.00	100%
15	96.30	96.30	0.00	100%
20	142.62	142.62	0.00	100%
25	199.92	199.92	0.00	100%
30	267.23	267.23	0.00	100%
35	342.98	342.98	0.00	100%
40	424.41	424.41	0.00	100%
45	503.45	503.45	0.00	100%
50	575.23	575.23	0.00	100%

Appendix D

Model Office

Various comparisons of reserve values required the use of a model office to aggregate results. The model office used for this purpose starts with a distribution of new sales and then rolls up sales for a number of years. Comparisons are made after a number of years of this growing block, typically 10 or 20 years.

For new sales, the distribution of new business was based on statistics obtained from LIMRA International's 1999 US Buyers Study. The following factors were reflected:

Products: The model incorporates the industry's three major life insurance products:

- Whole Life – whole life was chosen to be representative of all permanent plans.
- Universal Life – a UL plan with a level premium that produces zero cash value at the policy's maturity was used as representative of UL. This is referred to level premium to zero UL.
- Term - 20 year level premium term was chosen to be representative of all term products in the industry. We assumed the product was not renewable after 20 years. Since all reserve calculations used ultimate tables, and deficiency reserves were not considered, Regulation XXX was not a factor.

Issue Ages: 25, 35, 45, 55, and 65 for Whole Life and Term; 35, 45, 55 and 65 for UL. (The reserve calculator used did not produce values for age 25. For comparison purposes, UL reserves for age 35 were used for age 25.)

Gender: Male and Female.

The distribution of business used is shown in the following table.

Table D-1
Model Office Business Distribution
Percentages of New Sales

	Age 25	Age 35	Age 45	Age 55	Age 65	All Ages
Male						
Whole Life	3.1%	3.0%	2.7%	1.4%	0.5%	10.7%
20 Year Term	8.1%	15.9%	13.8%	6.4%	1.6%	45.8%
Level Premium to Zero UL	2.5%	5.9%	5.8%	1.9%	0.8%	10.6%
All Male	13.7%	21.7%	19.0%	9.7%	2.9%	67.1%
Female						
Whole Life	2.7%	1.8%	1.7%	1.4%	0.6%	8.1%
20 Year Term	4.6%	7.0%	5.0%	1.7%	0.3%	18.6%
Level Premium to Zero UL	2.2%	1.8%	1.2%	0.7%	0.3%	6.2%
All Female	9.4%	10.6%	7.9%	3.8%	1.2%	32.9%
Male and Female Combined						
Whole Life	5.8%	4.8%	4.4%	2.8%	1.1%	18.9%
20 Year Term	12.7%	22.9%	18.8%	8.1%	1.9%	64.3%
Level Premium to Zero UL	4.7%	4.6%	3.8%	2.6%	1.1%	16.8%
All	23.2%	32.3%	27.0%	13.5%	4.1%	100.0%

The distribution of business based on these factors was used to produce a single year's issues. In addition to comparisons based on a single year of issue, we also rolled several years of issue together to represent the overall reserves of a growing block of business. In doing this, we assumed a new sales growth rate of 5 percent per year and an overall lapse rate of 4 percent. Values from this growing block were examined after a number of years of issues, usually after 10 years or after 20 years.

Appendix E

Overall Impact of Proposed 2001 CSO Table

The proposed 2001 CSO table produces reserves that are different from those produced by the existing valuation standard, the 1980 CSO table. To facilitate comparison of reserves based on these two tables, the model office described in Appendix D was used to aggregate results overall and for various segments of business. A comparison of reserves produced by these two tables is shown below.

Table E-1
Reserves Produced by the Proposed 2001 CSO Table
Divided by Reserves Produced by the 1980 CSO Table
(aggregated results)

	<u>After</u> <u>10 years</u>	<u>After</u> <u>20 years</u>
Overall	78.0%	81.4%
Gender		
Male	75.5%	79.3%
Female	84.6%	86.5%
Plan		
Whole Life	84.8%	86.0%
20 Year Term	67.1%	67.5%
UL – Level Premium to Zero	94.3%	98.1%
Age		
25	80.2%	84.1%
35	74.2%	79.1%
45	76.9%	80.5%
55	78.3%	81.1%
65	81.9%	84.2%

This shows that overall reserves will be lower under the proposed table by about 20 percent. It also shows:

- The reduction will be larger for males than for females, reflecting the larger reduction in mortality rates for males.

- Term insurance will see the largest reductions, followed by whole life. The level premium to zero UL plan shows the smallest reductions because reserves cannot be less than cash values and the cash value determines the reserve, typically by the 6th to 8th duration under both the old and new tables. We did not compare UL Model Regulation reserves for higher premium UL plans, because the cash value determines the reserve at even earlier durations. After this happens, reserves under either table will be the same.
- Age 35 will see the biggest reductions while ages 25 and 65 will see the smallest.

The following tables give more details on this comparison.

Table E-2
Reserves Produced by the Proposed 2001 CSO Table
Divided by Reserves Produced by the 1980 CSO Table
(details – after 10 years)

	Age 25	Age 35	Age 45	Age 55	Age 65	All Ages
Male						
Whole Life	80.0%	82.0%	83.5%	86.3%	89.7%	84.1%
20 Year Term	47.0%	57.8%	60.9%	67.3%	77.4%	65.2%
Level Premium to Zero UL	92.6%	92.6%	93.6%	94.7%	95.7%	94.0%
All Male	77.2%	72.2%	72.2%	76.0%	83.1%	75.5%
Female						
Whole Life	86.1%	86.9%	90.2%	85.1%	80.0%	85.8%
20 Year Term	58.9%	61.7%	92.0%	81.2%	67.1%	76.7%
Level Premium to Zero UL	94.3%	94.3%	96.4%	95.4%	94.1%	95.0%
All Female	30.0%	36.6%	45.3%	33.6%	26.0%	84.6%
Male and Female Combined						
Whole Life	82.6%	83.6%	85.8%	85.8%	84.9%	84.8%
20 Year Term	50.9%	58.8%	66.2%	69.1%	76.2%	67.1%
Level Premium to Zero UL	93.3%	93.1%	94.4%	94.9%	95.3%	94.3%
All	80.2%	74.2%	76.9%	78.3%	81.9%	78.0%

Table E-3
Reserves Produced by the Proposed 2001 CSO Table
Divided by Reserves Produced by the 1980 CSO Table
(details – after 10 years)

	Age 25	Age 35	Age 45	Age 55	Age 65	All Ages
Male						
Whole Life	81.2%	83.4%	85.7%	88.8%	93.1%	86.0%
20 Year Term	48.4%	57.5%	61.7%	67.4%	78.0%	65.7%
Level Premium to Zero UL	97.7%	97.7%	97.7%	98.2%	98.4%	97.9%
All Male	81.8%	76.7%	76.4%	79.5%	86.0%	79.3%
Female						
Whole Life	86.8%	88.9%	89.7%	84.5%	80.6%	86.1%
20 Year Term	56.4%	65.8%	93.4%	79.3%	64.6%	77.0%
Level Premium to Zero UL	98.2%	98.2%	98.7%	98.5%	98.0%	98.3%
All Female	87.4%	84.8%	92.1%	85.5%	80.1%	86.5%
Male and Female Combined						
Whole Life	83.6%	85.2%	87.1%	86.9%	86.7%	86.0%
20 Year Term	51.0%	59.5%	67.0%	68.9%	76.3%	67.5%
Level Premium to Zero UL	97.9%	97.9%	98.0%	98.2%	98.3%	98.1%
All	84.1%	79.1%	80.5%	81.1%	84.2%	81.4%

Appendix F

Select Period Actual to Expected Ratios by Company

Since the loading formula was developed using ultimate mortality, the Academy Task Force felt that additional analysis of the load during the select period was needed to verify the appropriateness of the loading formula. As a result, breakdowns of the underlying mortality experience were obtained by company, by policy duration, and by age during the select period.

Of the companies that contributed data to the SOA's 1990-95 study, 14 had data during the entire select period (i.e., policy years 1-25). Actual to expected mortality ratios were calculated for these 14 companies, with expected mortality based on the proposed 2001 CSO Table.

Table F-1 below shows these actual to expected ratios for issue ages 15-34, Table F-2 shows issue ages 35-49, Table F-3 shows issue ages 50 and above, and Table F-4 shows all issue ages. Each of these tables contains five data columns: male nonsmoker, male smoker, female nonsmoker, female smoker, and both genders and smoking statuses combined. (The data in Table F-4 is the underlying data contained in Charts 3a - 3e in the body of this report.)

For each of these breakdowns, the individual company actual to expected ratios are usually less than 100%. However, there are some exceptions since the proposed 2001 CSO Table was intended to produce mortality that exceeds actual experience most, but not all, of the time. The AAA Task Force feels that the results shown in the following tables support the level of the loads in the proposed 2001 CSO Table during the select period.

Table F-1

Actual to Expected Ratios by Company
Issue Ages 15-34
Actual Mortality based on durations 1-25 of 1990-95 SOA Study
Expected Mortality based on Proposed 2001 CSO Table

Company	Male		Female		All
	Nonsmoker	Smoker	Nonsmoker	Smoker	
	99%	121%	87%	92%	100%
	144%	110%	<i>70%</i>	<i>115%</i>	122%
	68%	<i>52%</i>	<i>59%</i>	<i>66%</i>	65%
	<i>87%</i>	86%	<i>0%</i>	79%	81%
	70%	76%	55%	58%	67%
	64%	82%	47%	73%	63%
	84%	118%	<i>162%</i>	<i>110%</i>	102%
	97%	100%	<i>60%</i>	80%	93%
	46%	66%	38%	48%	47%
	71%	64%	50%	<i>65%</i>	66%
	107%	104%	<i>247%</i>	<i>41%</i>	120%
	57%	<i>58%</i>	<i>87%</i>	<i>59%</i>	61%
	<i>60%</i>	<i>33%</i>	<i>69%</i>	<i>5%</i>	<i>55%</i>
	89%	119%	98%	<i>77%</i>	99%
All	70%	88%	63%	66%	71%

Italicized cells have less than 35 deaths.

Table F-2

Actual to Expected Ratios by Company
Issue Ages 35-49
Actual Mortality based on durations 1-25 of 1990-95 SOA Study
Expected Mortality based on Proposed 2001 CSO Table

Company	Male		Female		All
	Nonsmoker	Smoker	Nonsmoker	Smoker	
	90%	111%	79%	100%	92%
	62%	105%	77%	88%	76%
	72%	65%	80%	<i>96%</i>	72%
	76%	94%	<i>62%</i>	54%	80%
	75%	89%	68%	70%	77%
	68%	81%	47%	79%	68%
	67%	82%	54%	63%	69%
	83%	81%	56%	53%	79%
	52%	59%	49%	51%	53%
	59%	91%	59%	90%	65%
	79%	74%	82%	115%	80%
	70%	<i>29%</i>	<i>61%</i>	<i>18%</i>	55%
	47%	<i>61%</i>	<i>11%</i>	<i>44%</i>	46%
	97%	89%	77%	64%	89%
All	71%	84%	66%	73%	73%

Italicized cells have less than 35 deaths.

Table F-3

Actual to Expected Ratios by Company
 Issue Ages 50+
 Actual Mortality based on durations 1-25 of 1990-95 SOA Study
 Expected Mortality based on Proposed 2001 CSO Table

Company	Male		Female		All
	Nonsmoker	Smoker	Nonsmoker	Smoker	
	109%	118%	94%	116%	107%
	84%	86%	116%	50%	87%
	69%	67%	34%	123%	65%
	79%	113%	<i>167%</i>	117%	97%
	82%	118%	70%	119%	89%
	52%	61%	63%	118%	56%
	88%	120%	85%	114%	97%
	92%	100%	54%	81%	90%
	53%	85%	64%	77%	60%
	71%	90%	52%	103%	72%
	94%	92%	74%	118%	90%
	91%	44%	65%	<i>18%</i>	67%
	57%	73%	47%	<i>106%</i>	60%
	93%	101%	67%	92%	92%
All	78%	97%	71%	103%	81%

Italicized cells have less than 35 deaths.

Table F-4

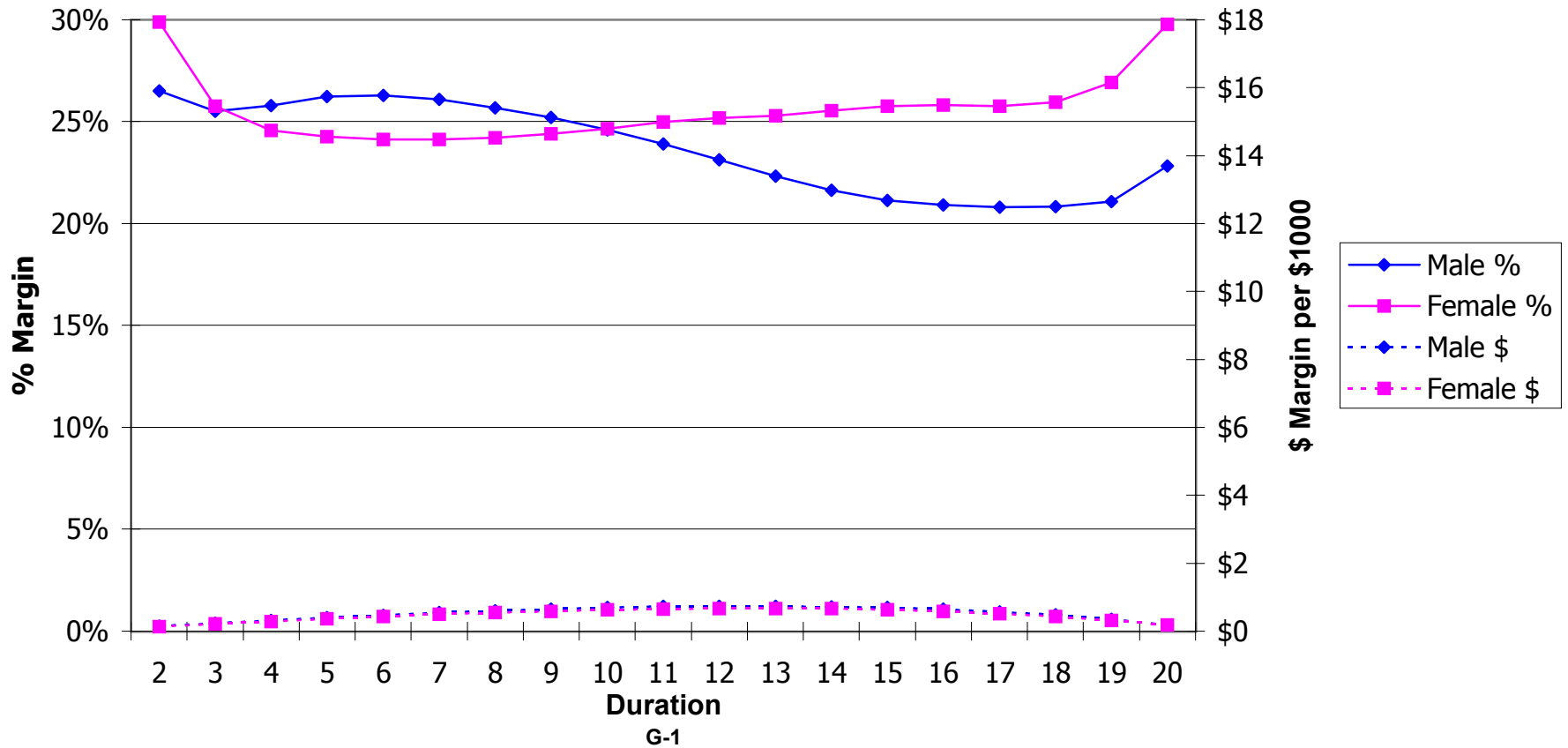
Actual to Expected Ratios by Company
 All Issue Ages
 Actual Mortality based on durations 1-25 of 1990-95 SOA Study
 Expected Mortality based on Proposed 2001 CSO Table

Company	Male		Female		All
	Nonsmoker	Smoker	Nonsmoker	Smoker	
	99%	116%	87%	105%	99%
	82%	98%	95%	73%	86%
	70%	64%	53%	106%	68%
	78%	101%	123%	91%	89%
	74%	87%	63%	74%	75%
	58%	71%	57%	100%	61%
	80%	108%	85%	97%	88%
	89%	93%	55%	72%	87%
	51%	68%	50%	60%	53%
	66%	87%	54%	92%	68%
	91%	87%	79%	114%	89%
	77%	42%	67%	<i>26%</i>	62%
	54%	67%	43%	96%	57%
	95%	97%	73%	82%	91%
All	74%	90%	68%	87%	77%

Italicized cells have less than 35 deaths.

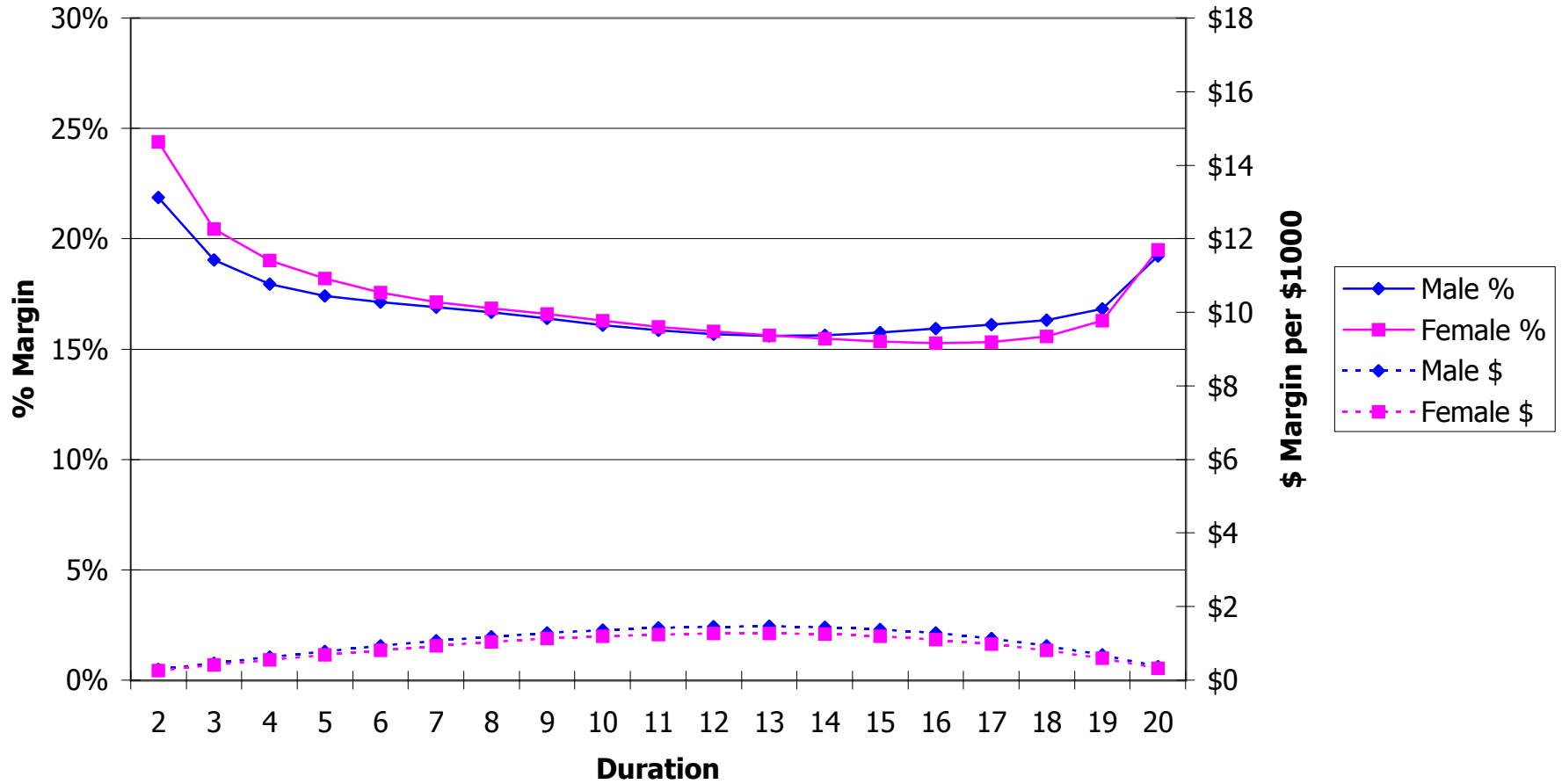
**Appendix G
Reserve and Net Premium Margins**

**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Gender
Level Premium 20 Year Term - Issue Age 25 - Nonsmoker - Select & Ultimate - 4.50%**



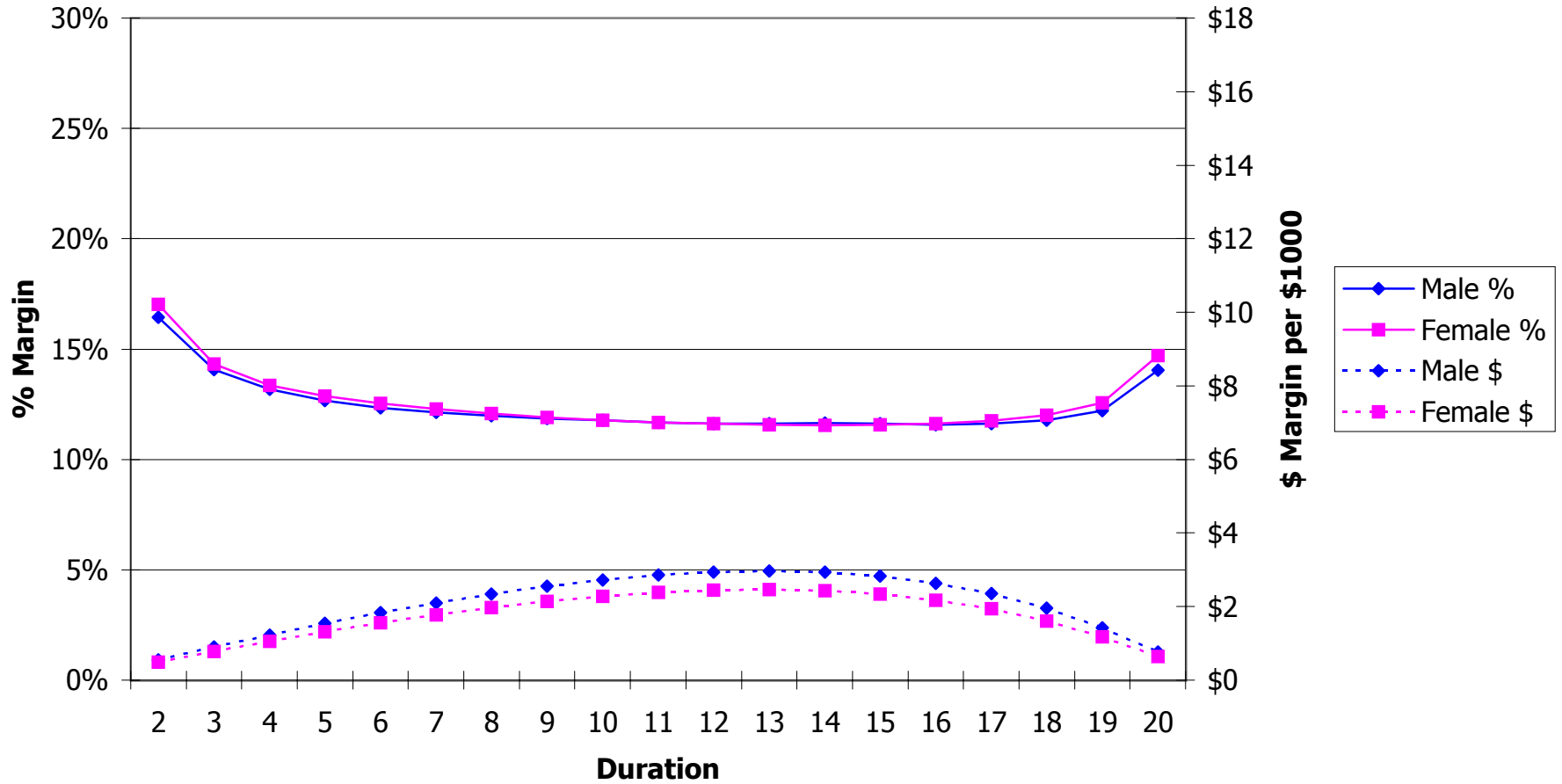
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 35 - Nonsmoker - Select & Ultimate - 4.50%



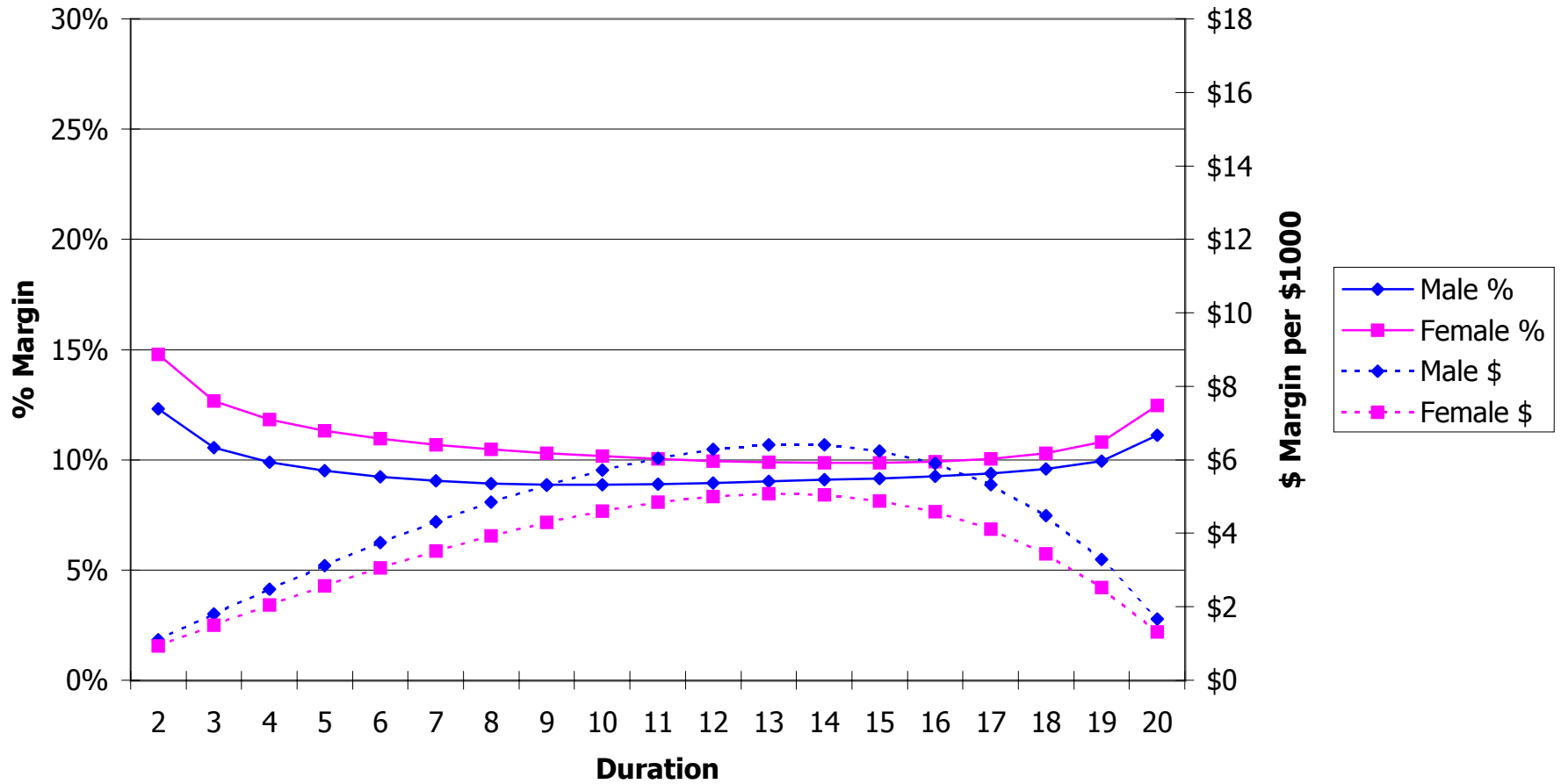
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 45 - Nonsmoker - Select & Ultimate - 4.50%



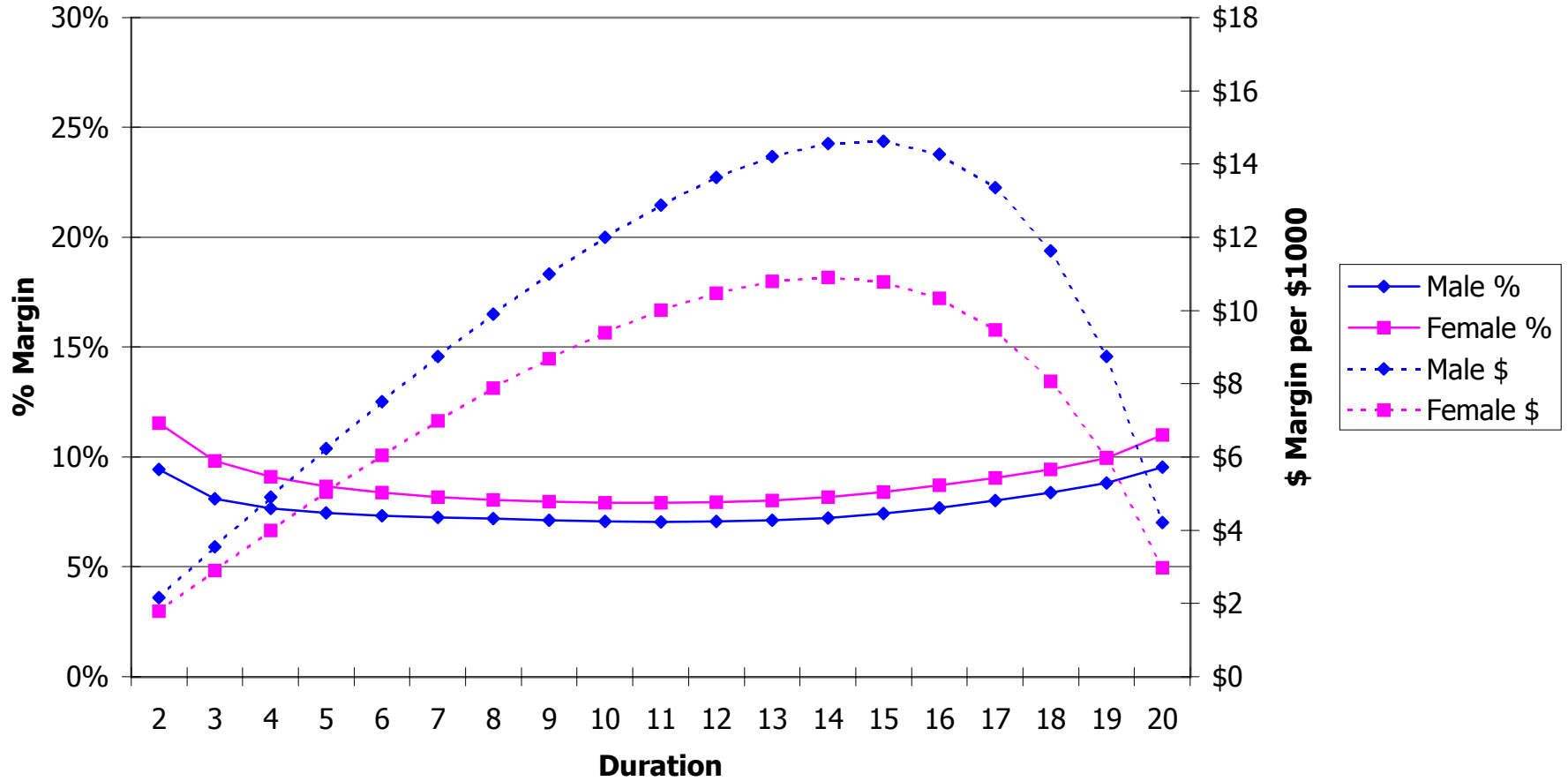
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 55 - Nonsmoker - Select & Ultimate - 4.50%



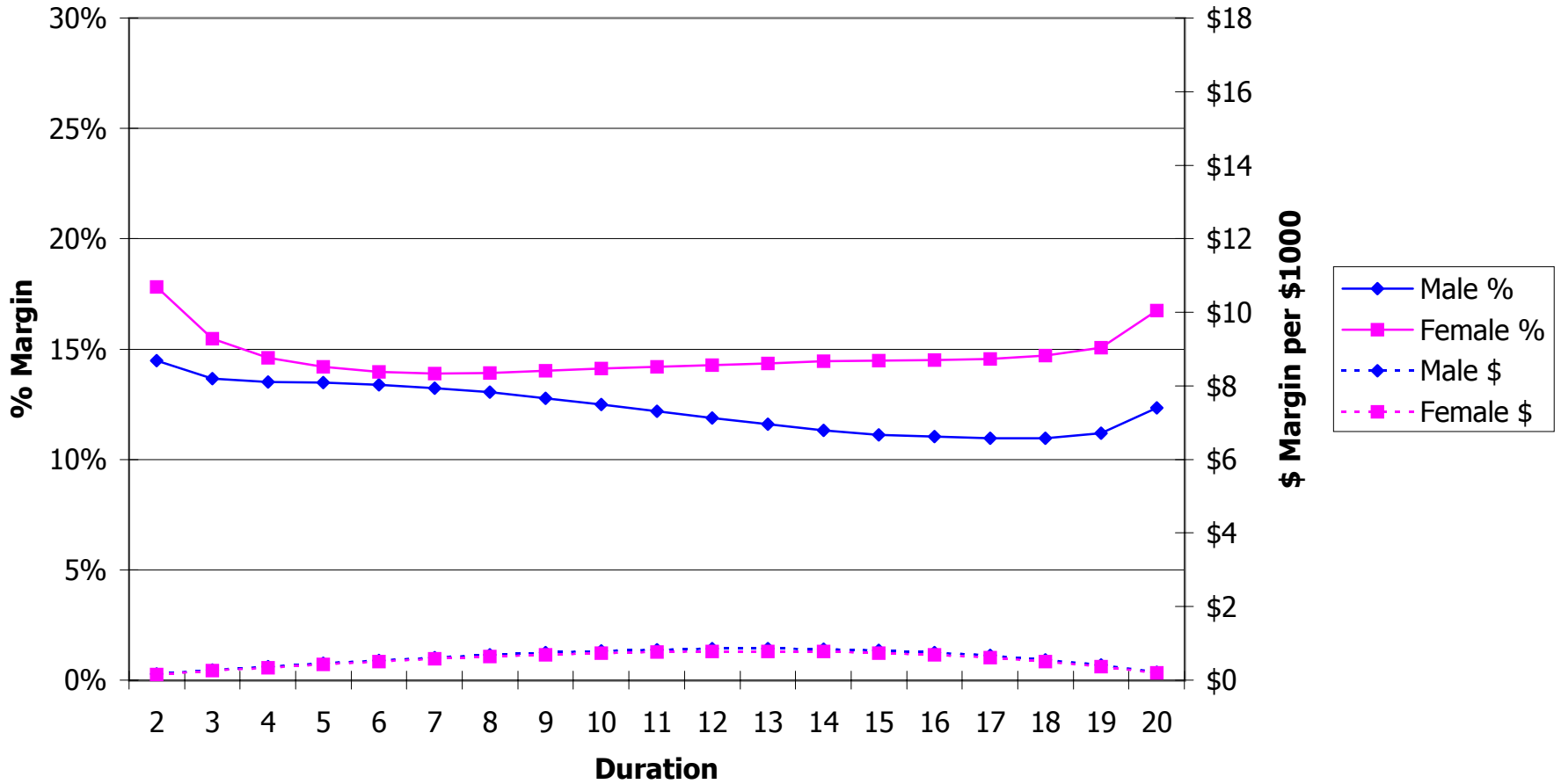
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 65 - Nonsmoker - Select & Ultimate - 4.50%



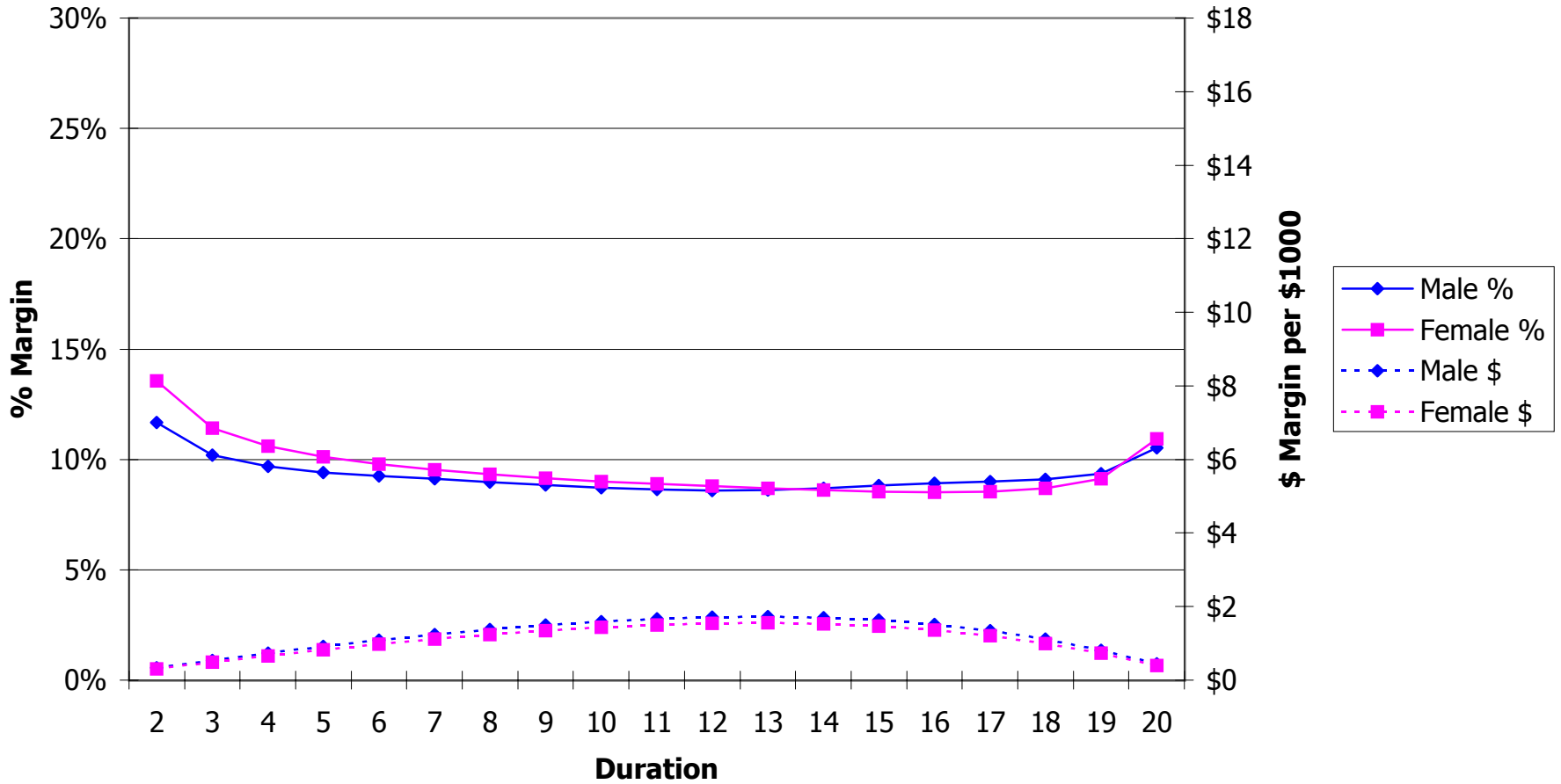
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 25 - Smoker - Select & Ultimate - 4.50%



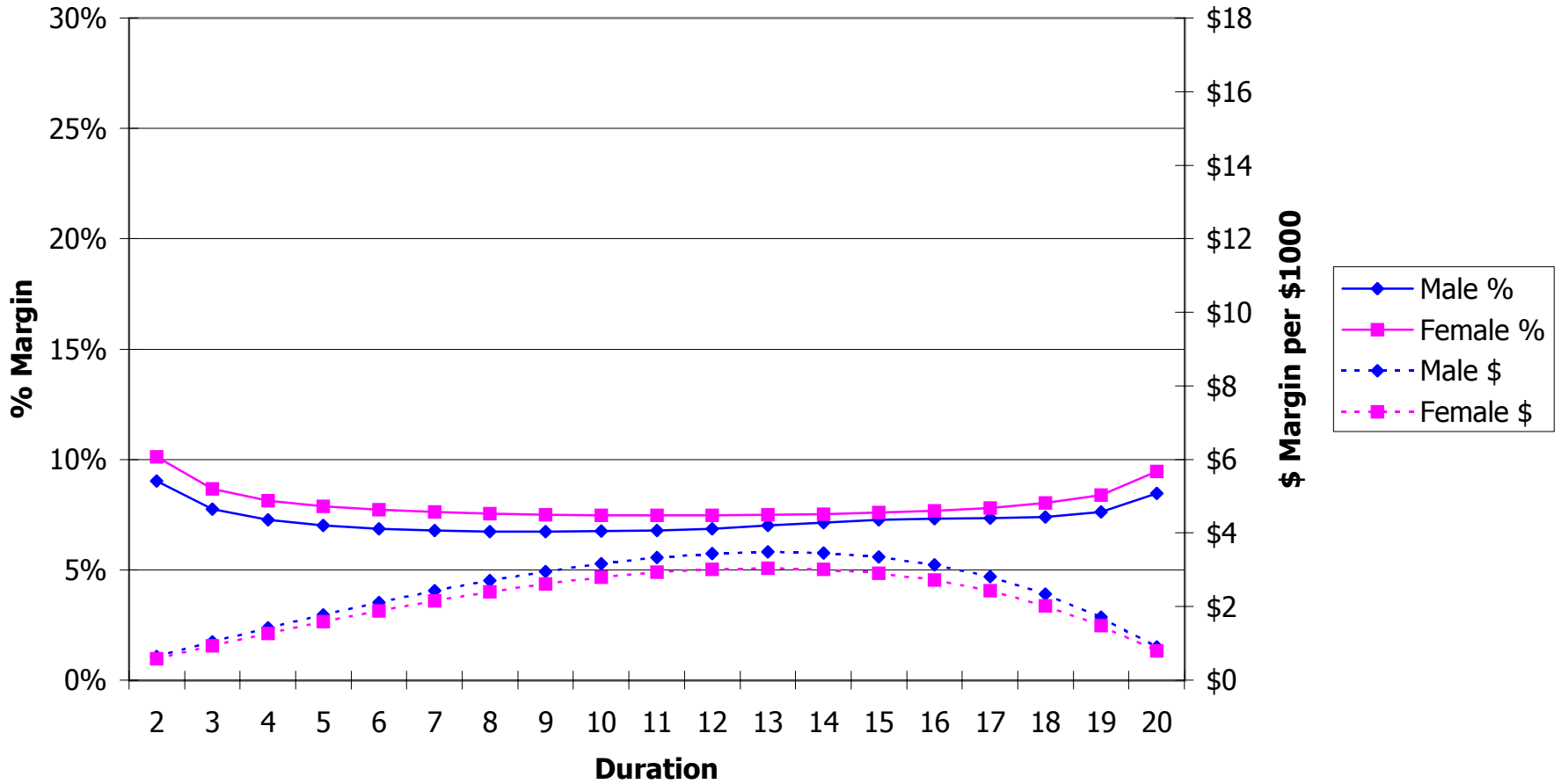
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 35 - Smoker - Select & Ultimate - 4.50%



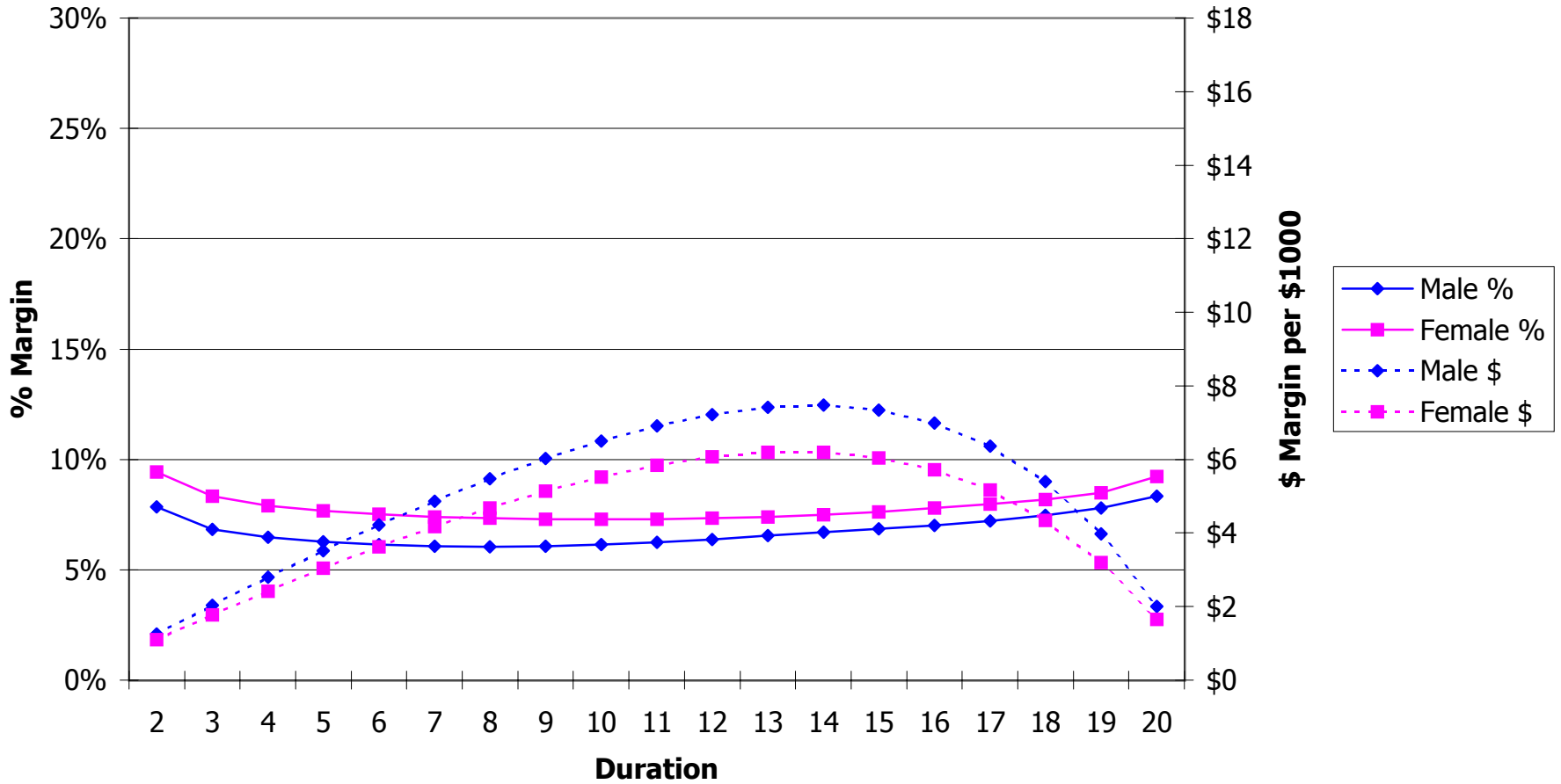
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 45 - Smoker - Select & Ultimate - 4.50%



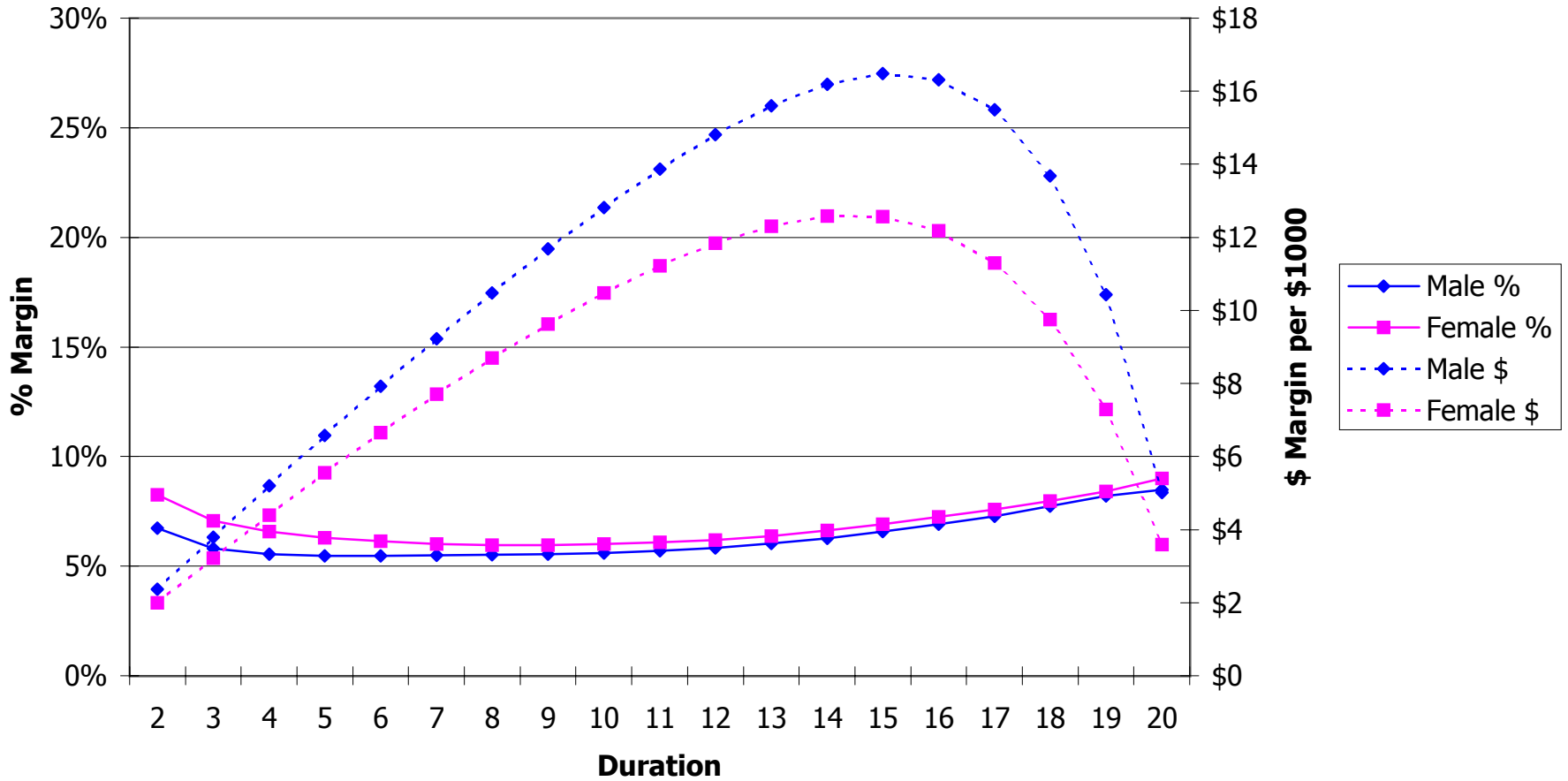
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 55 - Smoker - Select & Ultimate - 4.50%



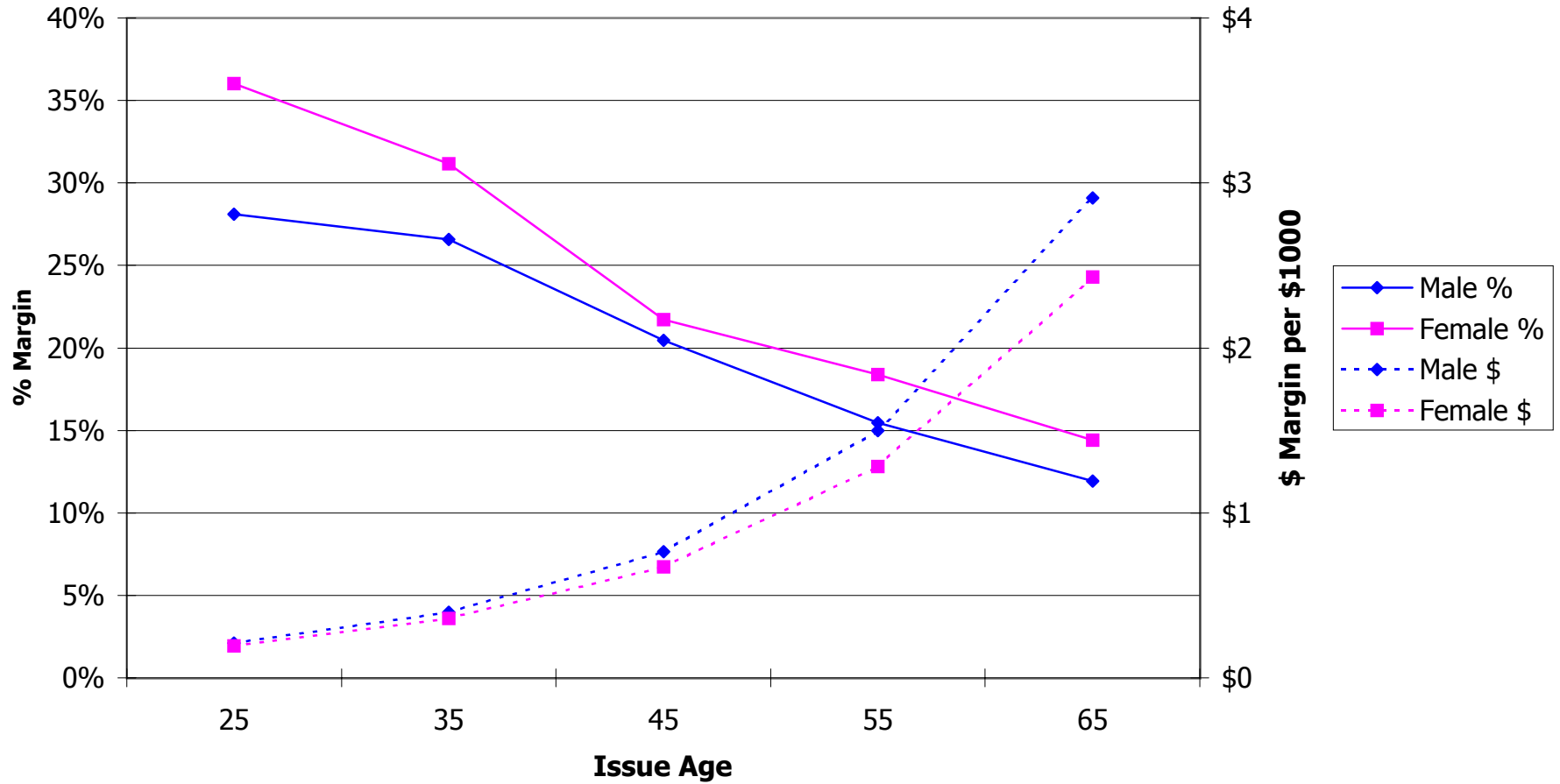
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Gender

Level Premium 20 Year Term - Issue Age 65 - Smoker - Select & Ultimate - 4.50%

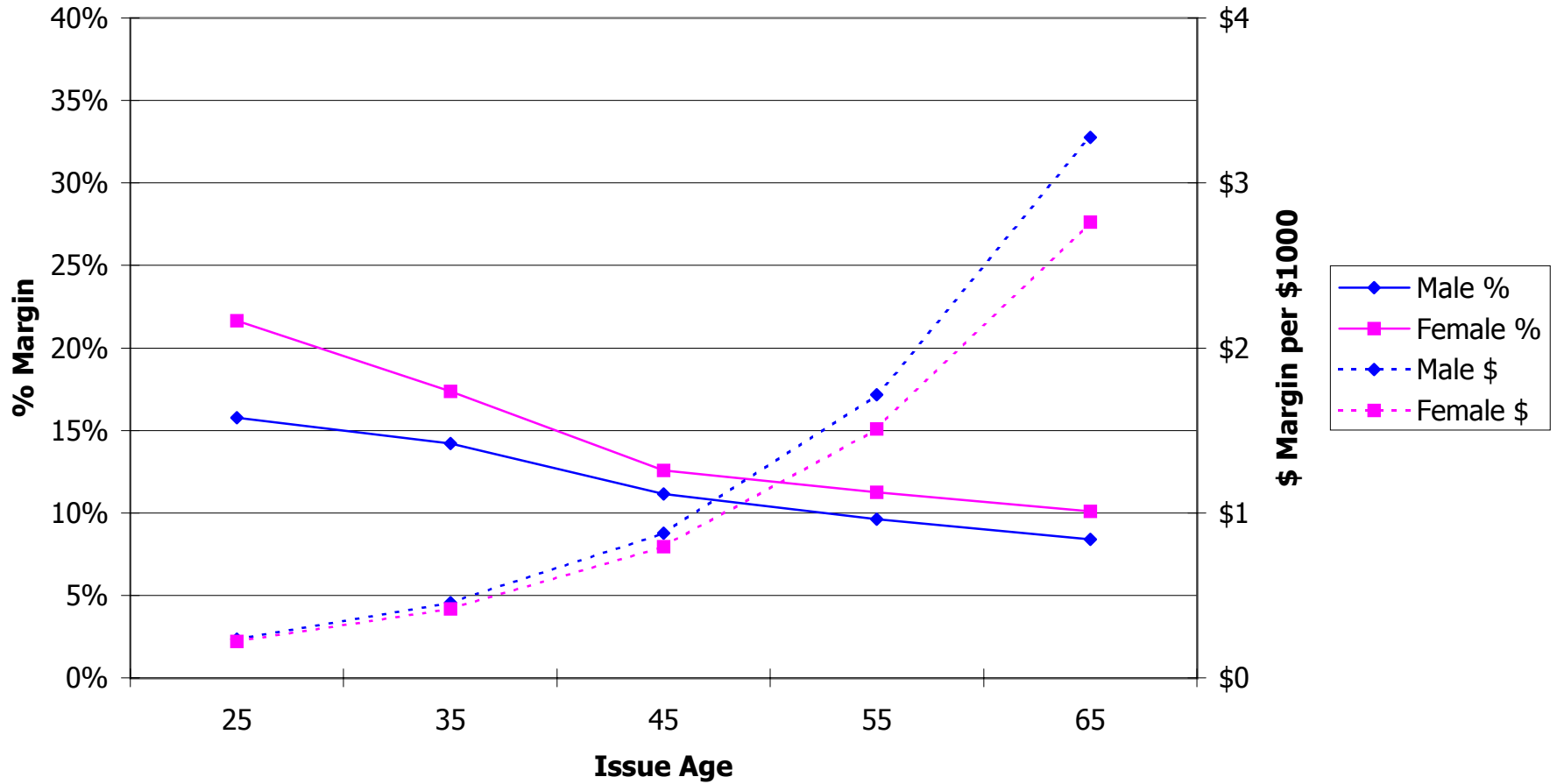


G-10

**Stat Valuation Beta Net Prem Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Gender
Level Premium 20 Year Term - Nonsmoker - Select & Ultimate - 4.50%**

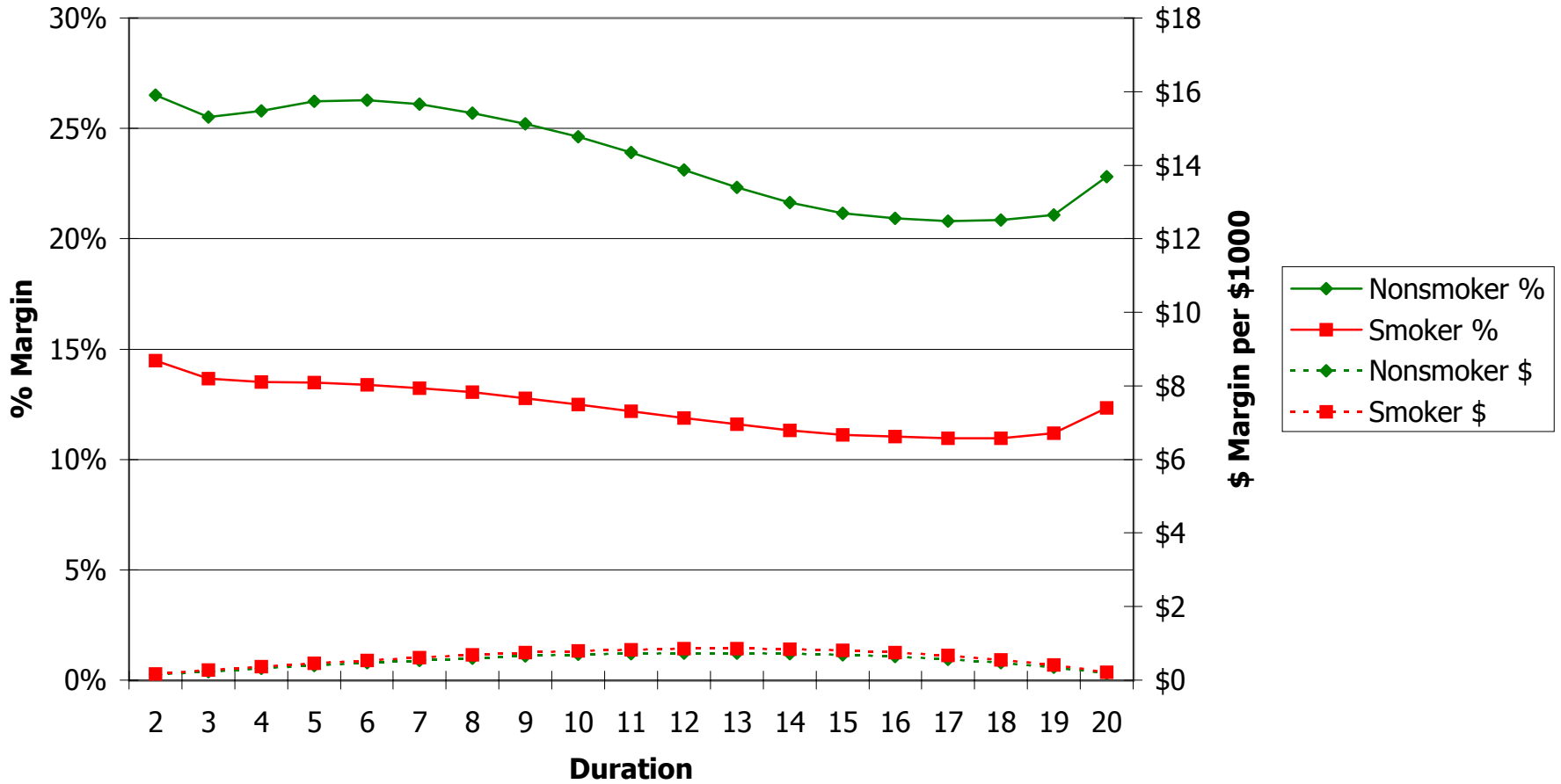


**Stat Valuation Beta Net Prem Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Gender
Level Premium 20 Year Term - Smoker - Select & Ultimate - 4.50%**



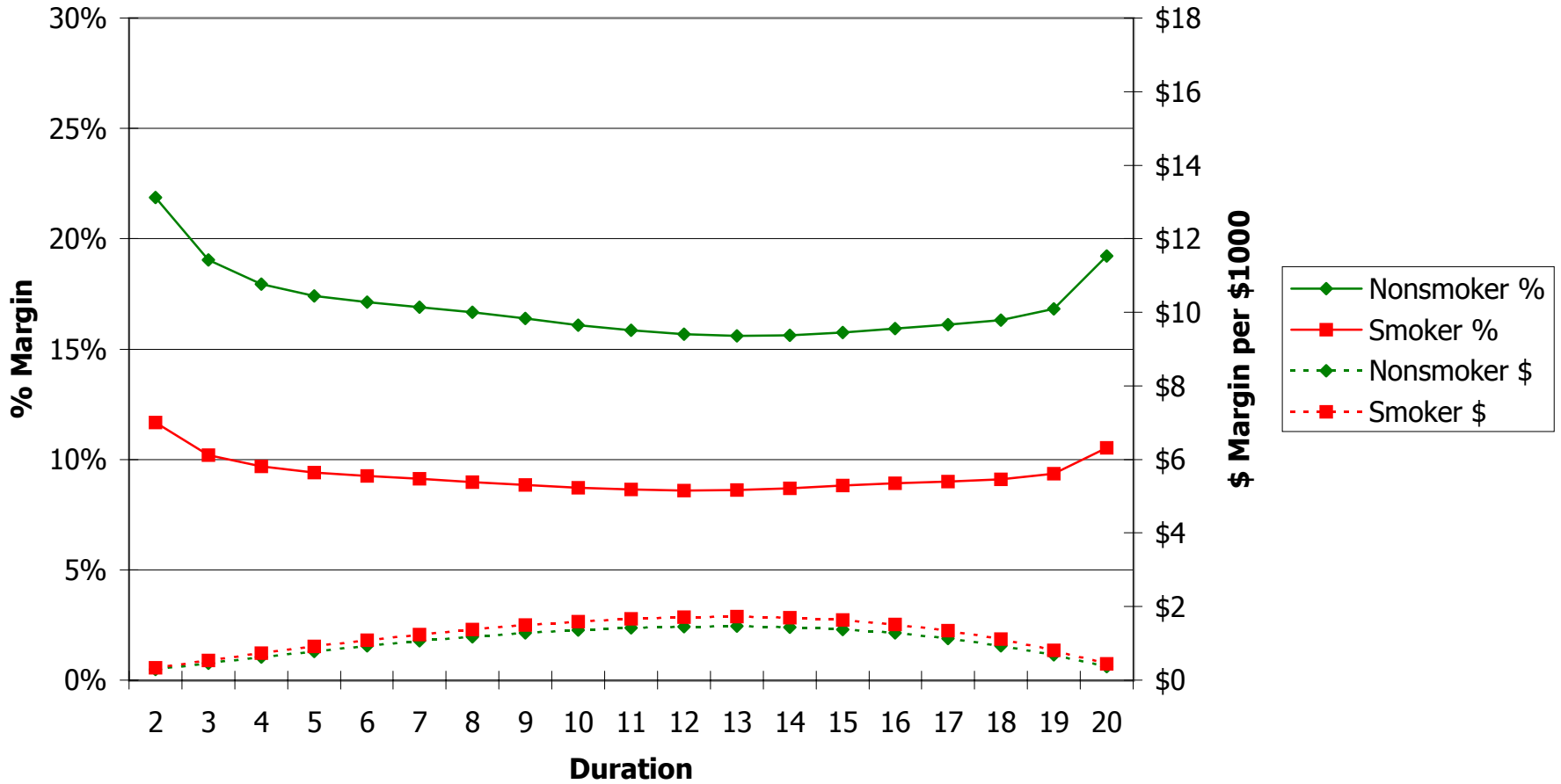
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 25 - Male - Select & Ultimate - 4.50%

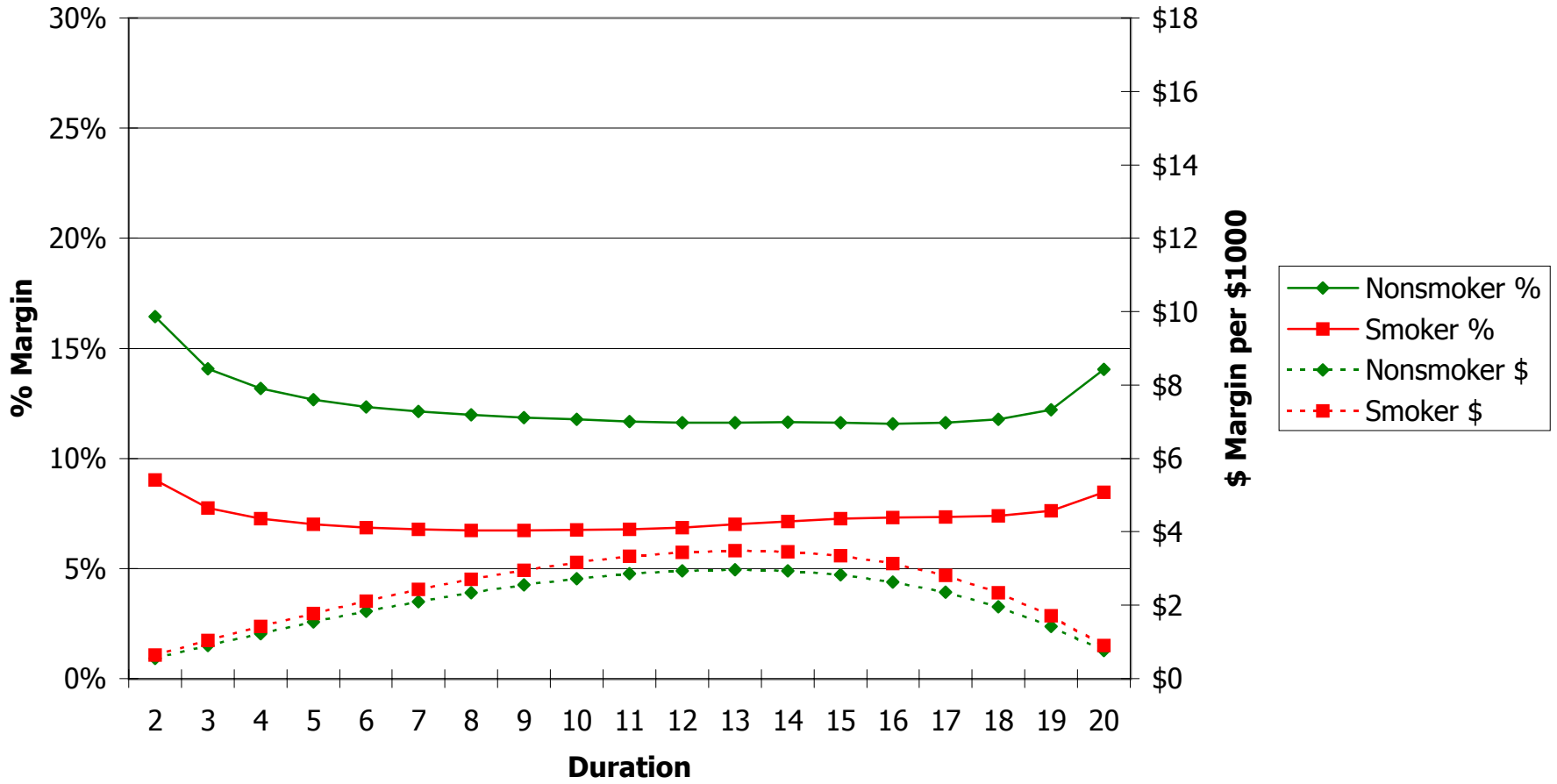


Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

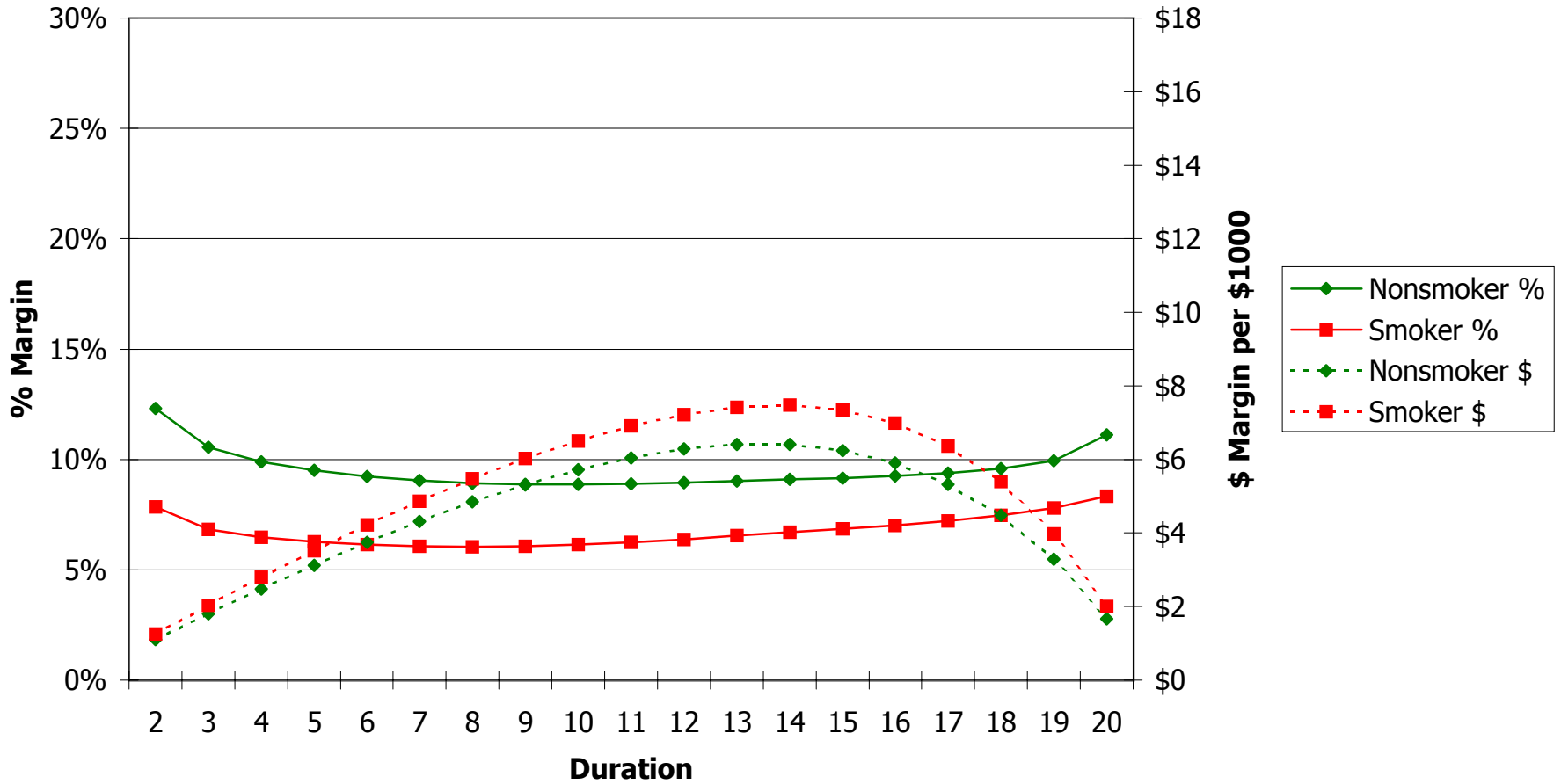
Level Premium 20 Year Term - Issue Age 35 - Male - Select & Ultimate - 4.50%



**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Smoking Status**
Level Premium 20 Year Term - Issue Age 45 - Male - Select & Ultimate - 4.50%

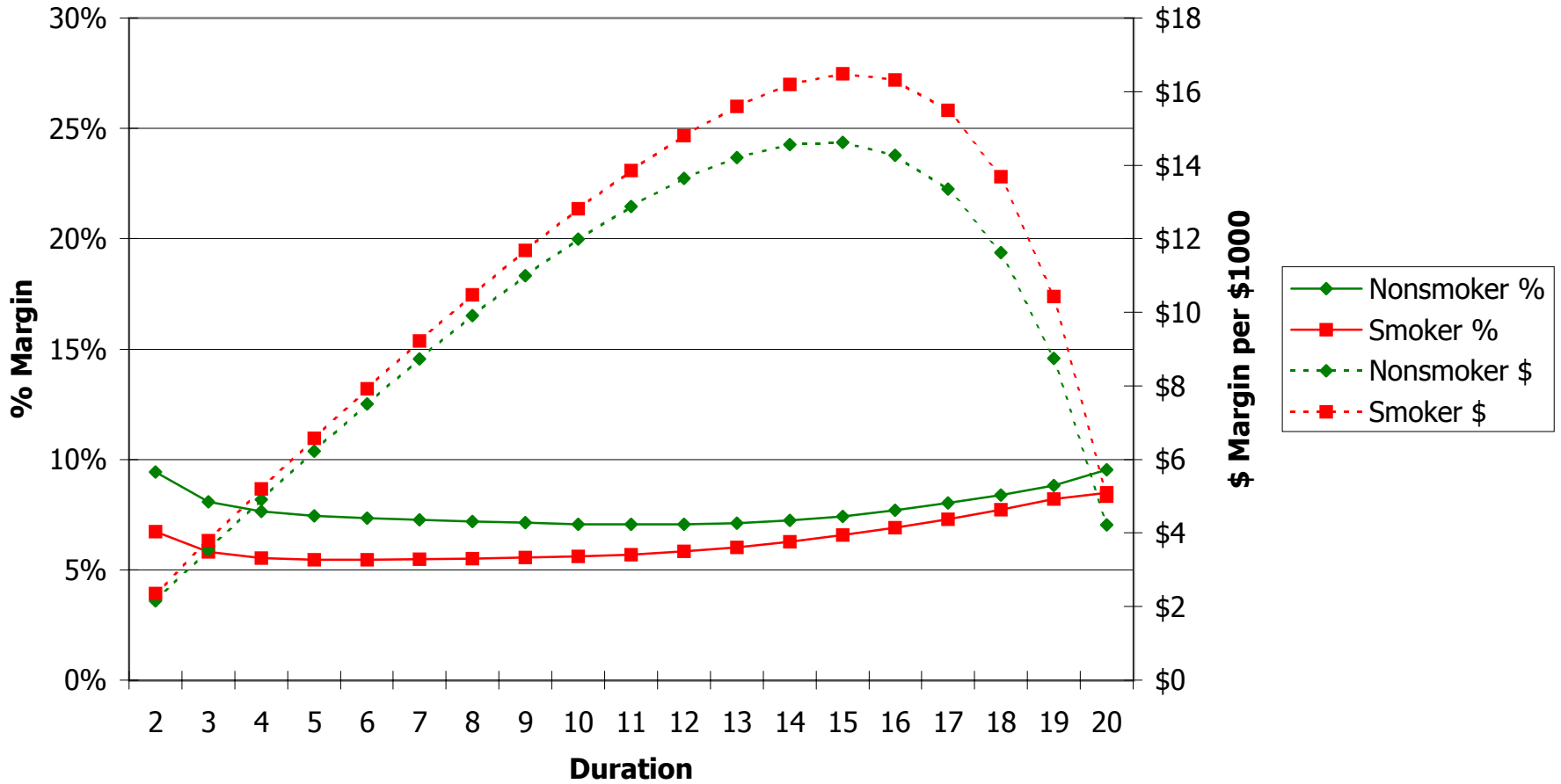


**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Smoking Status**
Level Premium 20 Year Term - Issue Age 55 - Male - Select & Ultimate - 4.50%



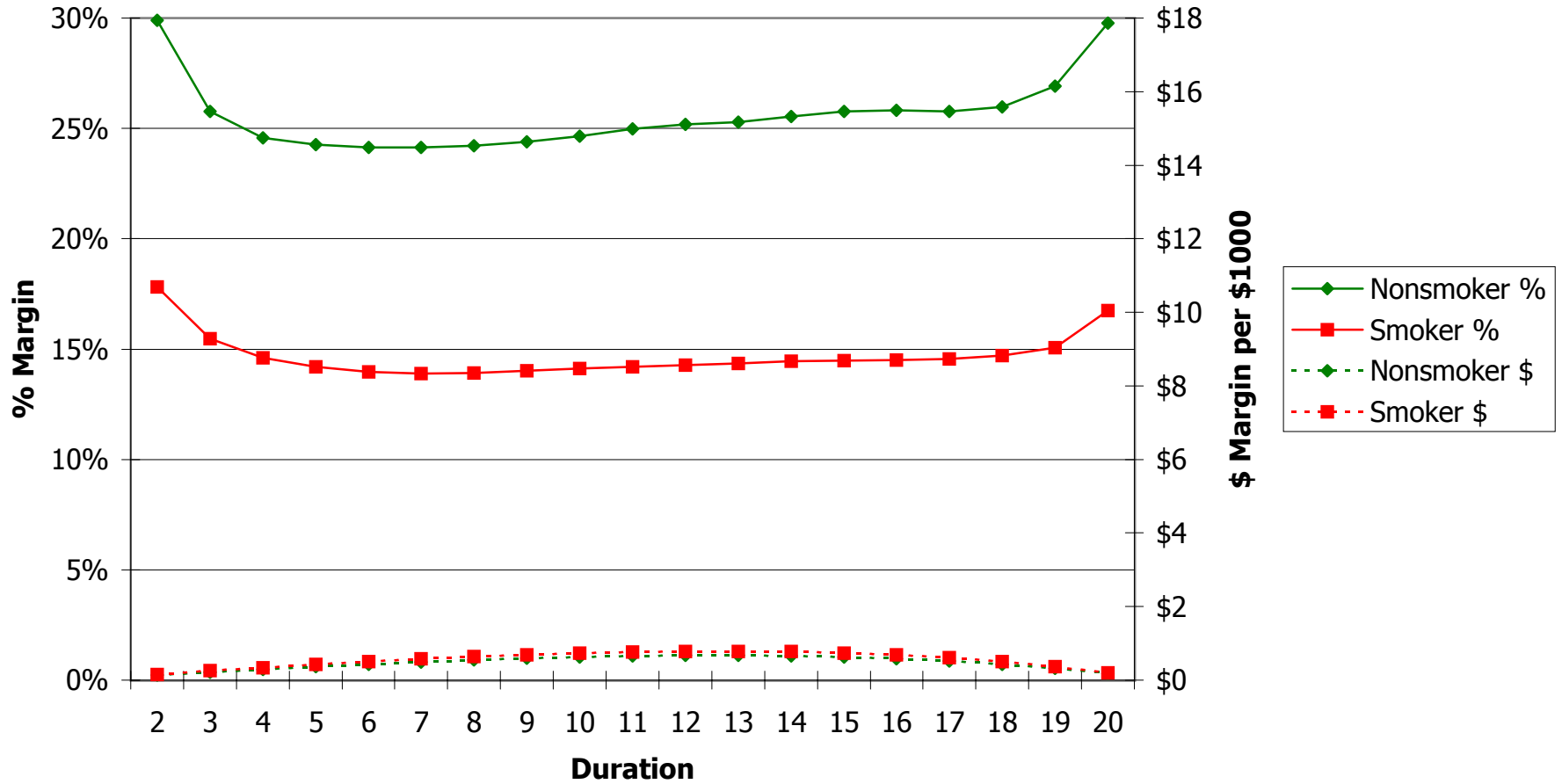
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 65 - Male - Select & Ultimate - 4.50%



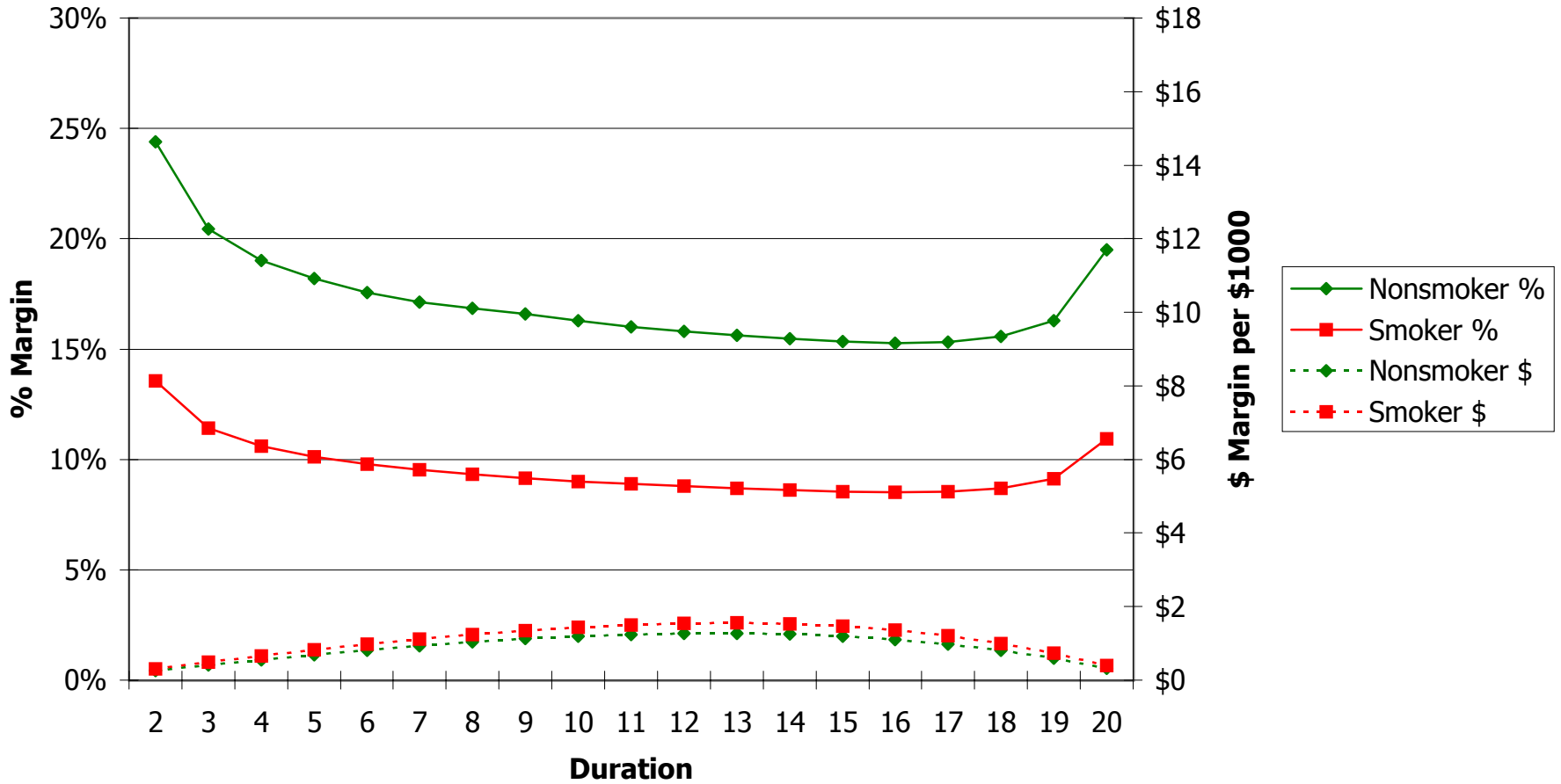
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 25 - Female - Select & Ultimate - 4.50%



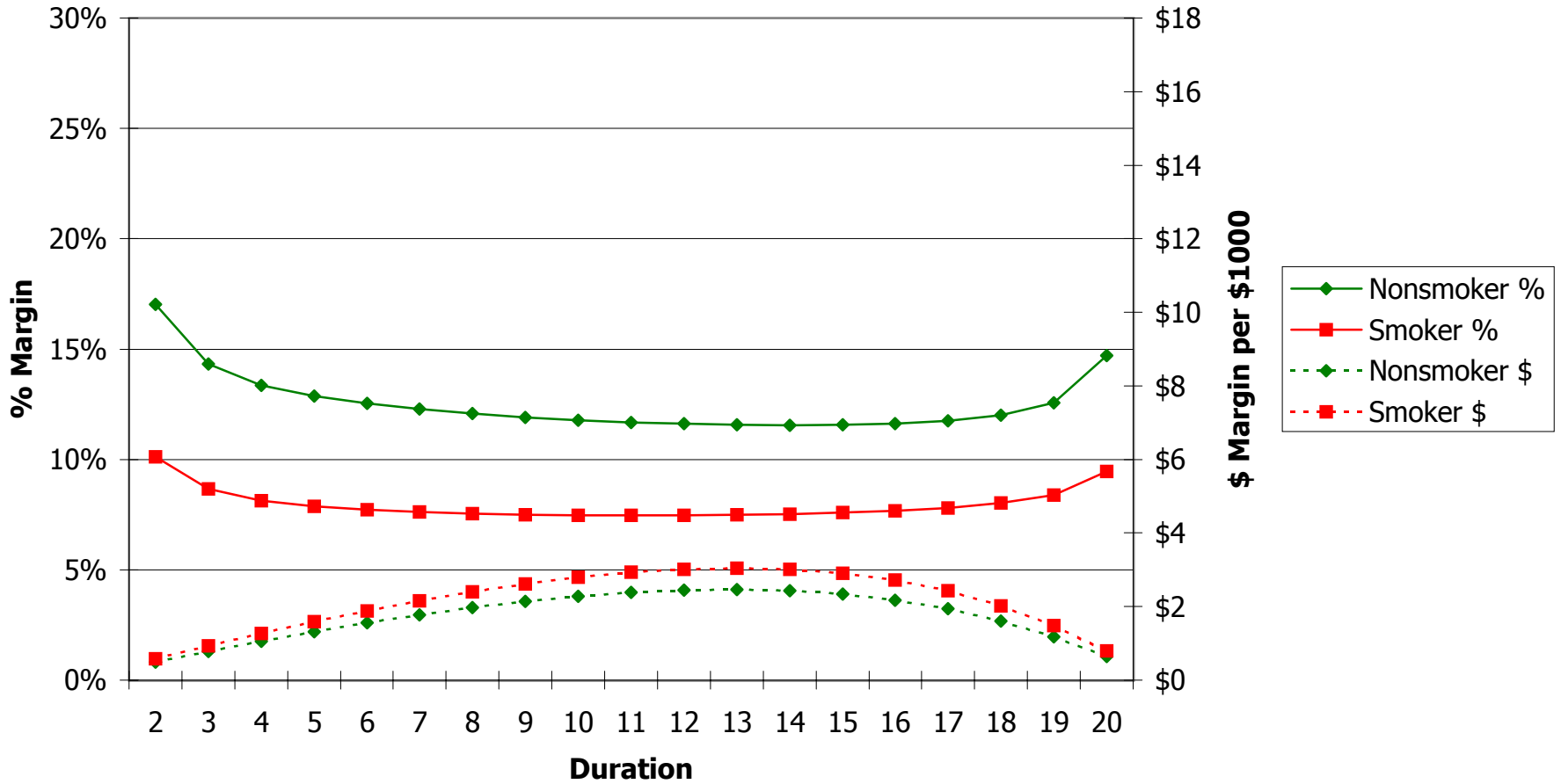
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 35 - Female - Select & Ultimate - 4.50%



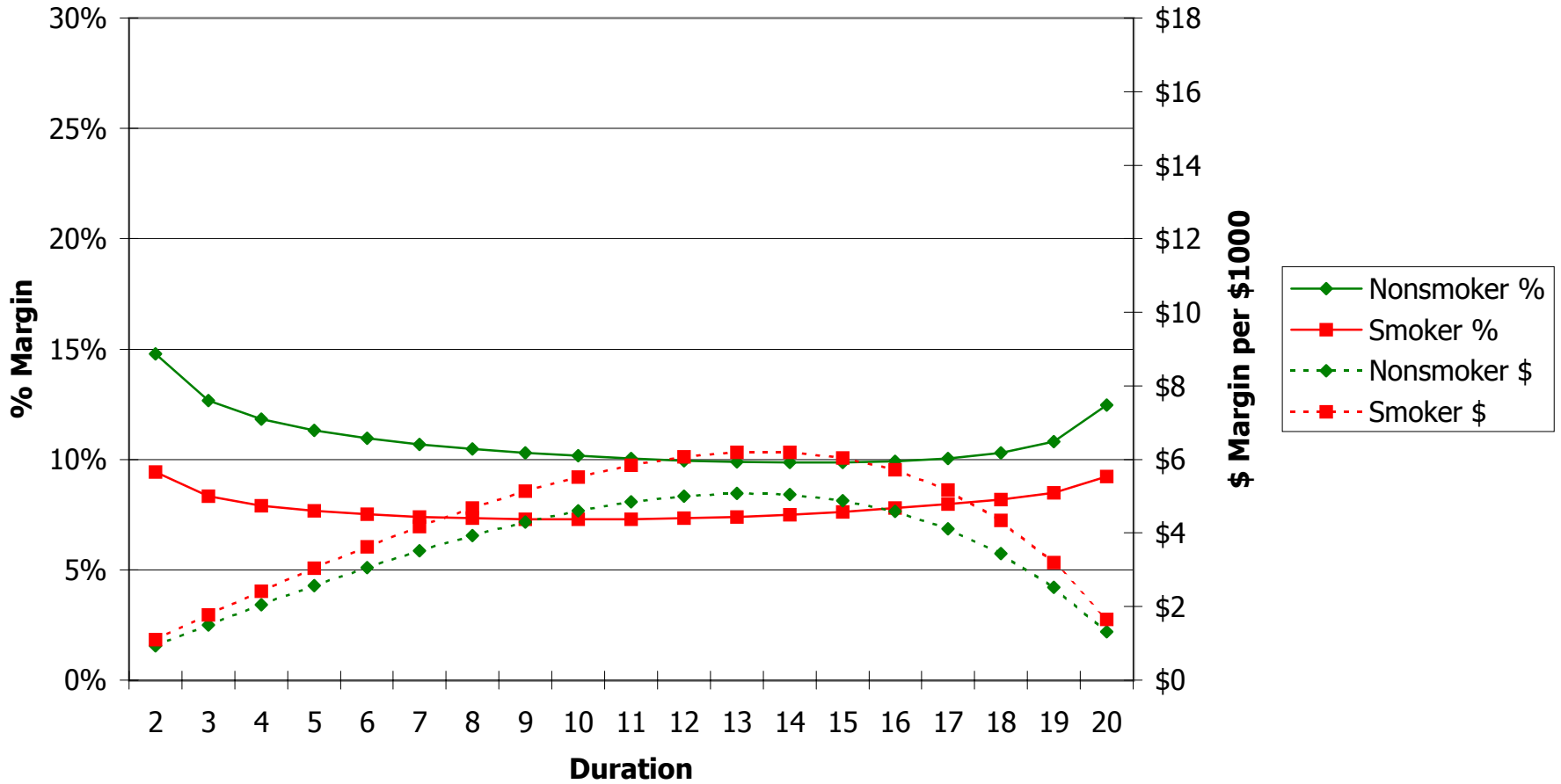
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 45 - Female - Select & Ultimate - 4.50%



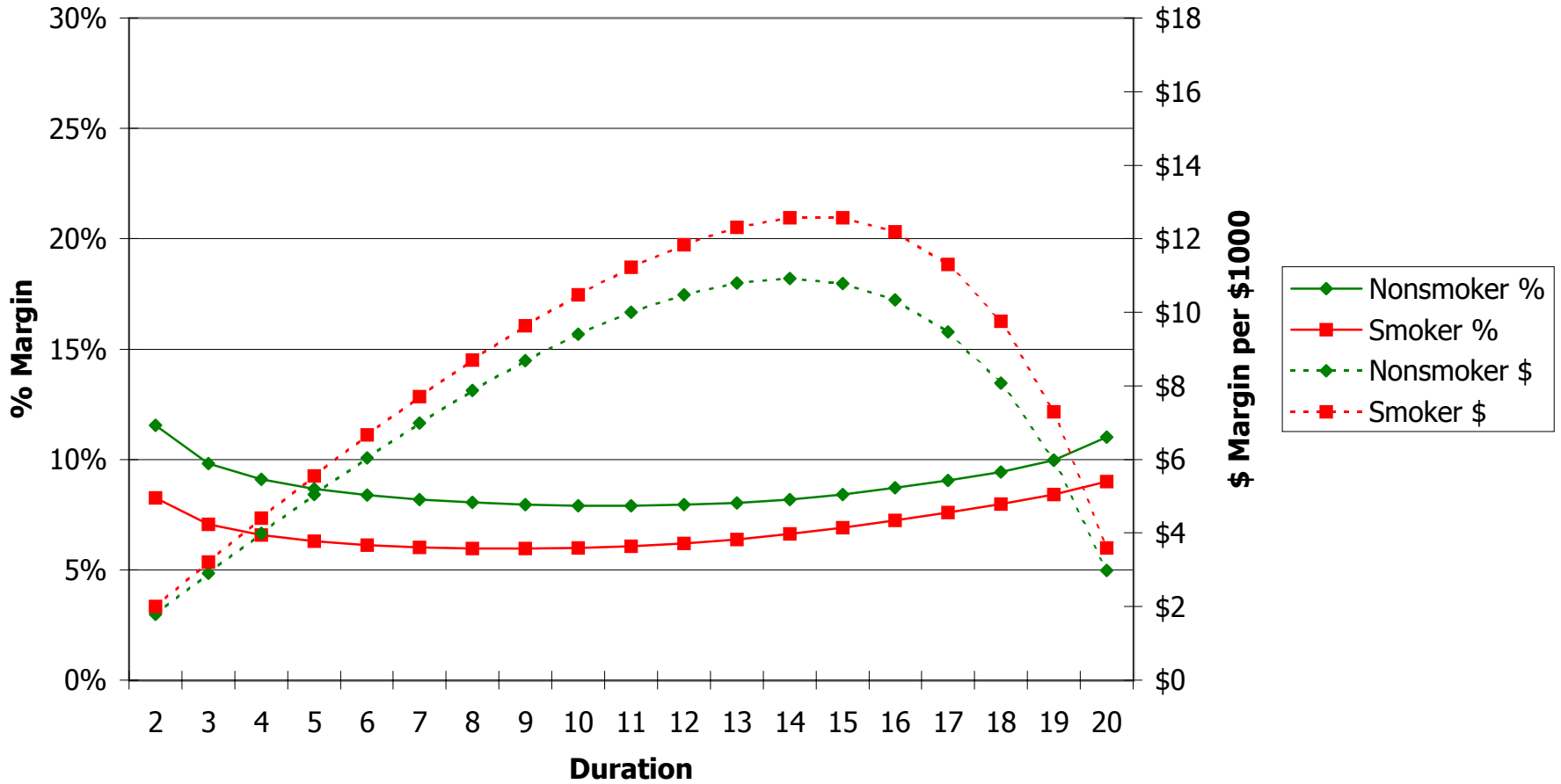
Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

Level Premium 20 Year Term - Issue Age 55 - Female - Select & Ultimate - 4.50%

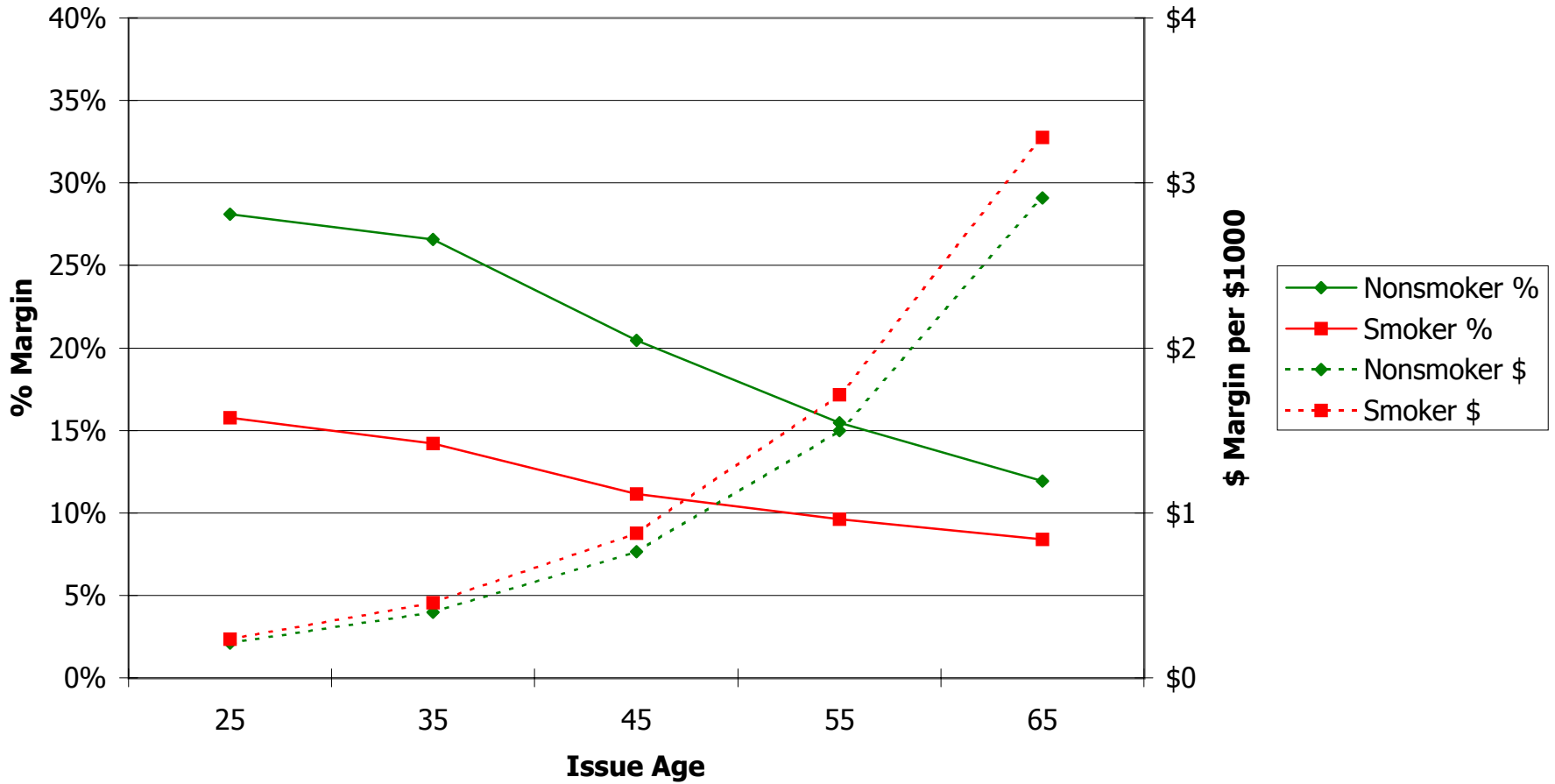


Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Smoking Status

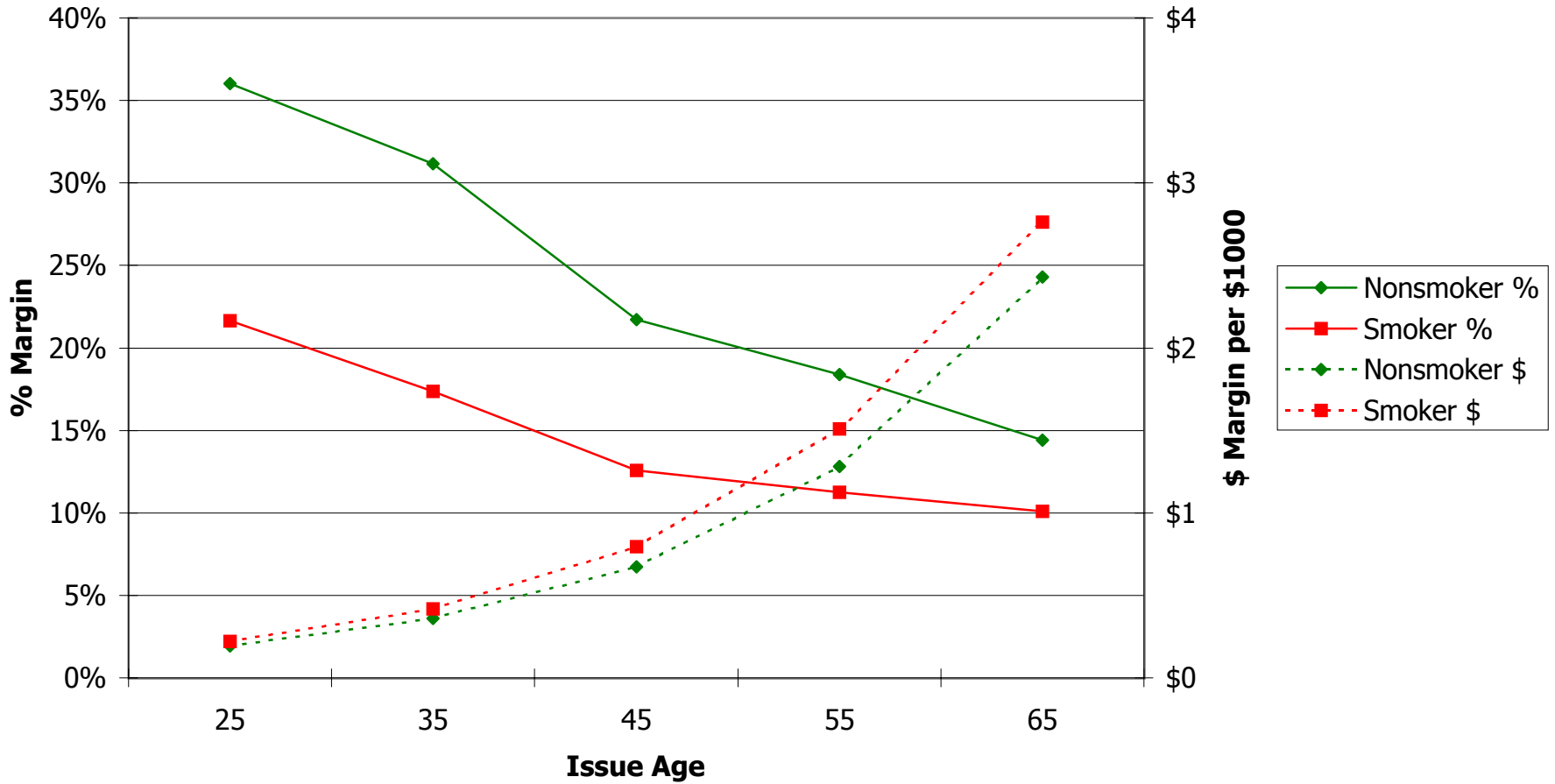
Level Premium 20 Year Term - Issue Age 65 - Female - Select & Ultimate - 4.50%



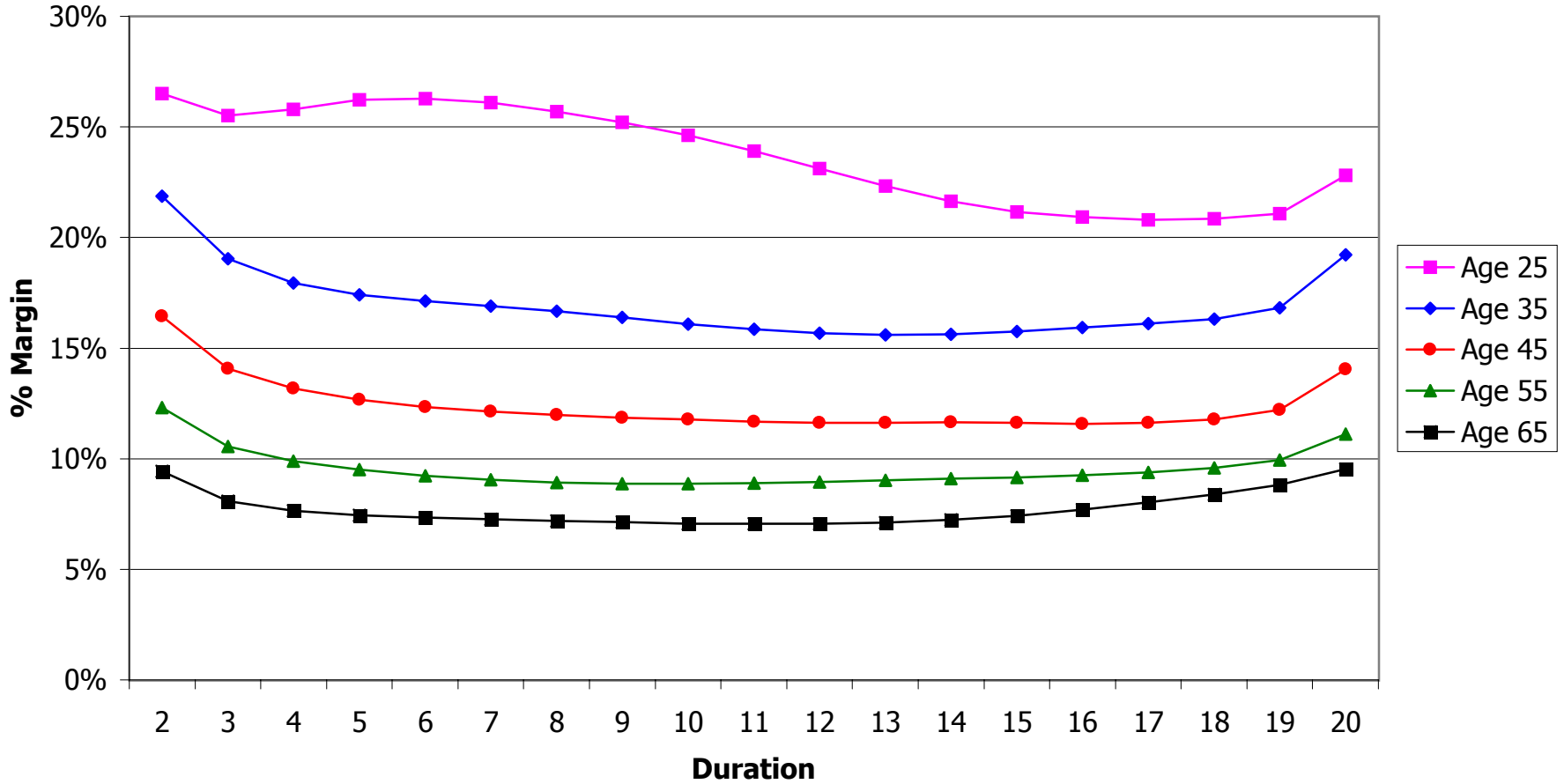
**Stat Valuation Beta Net Prem Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Smoking Status
Level Premium 20 Year Term - Male - Select & Ultimate - 4.50%**



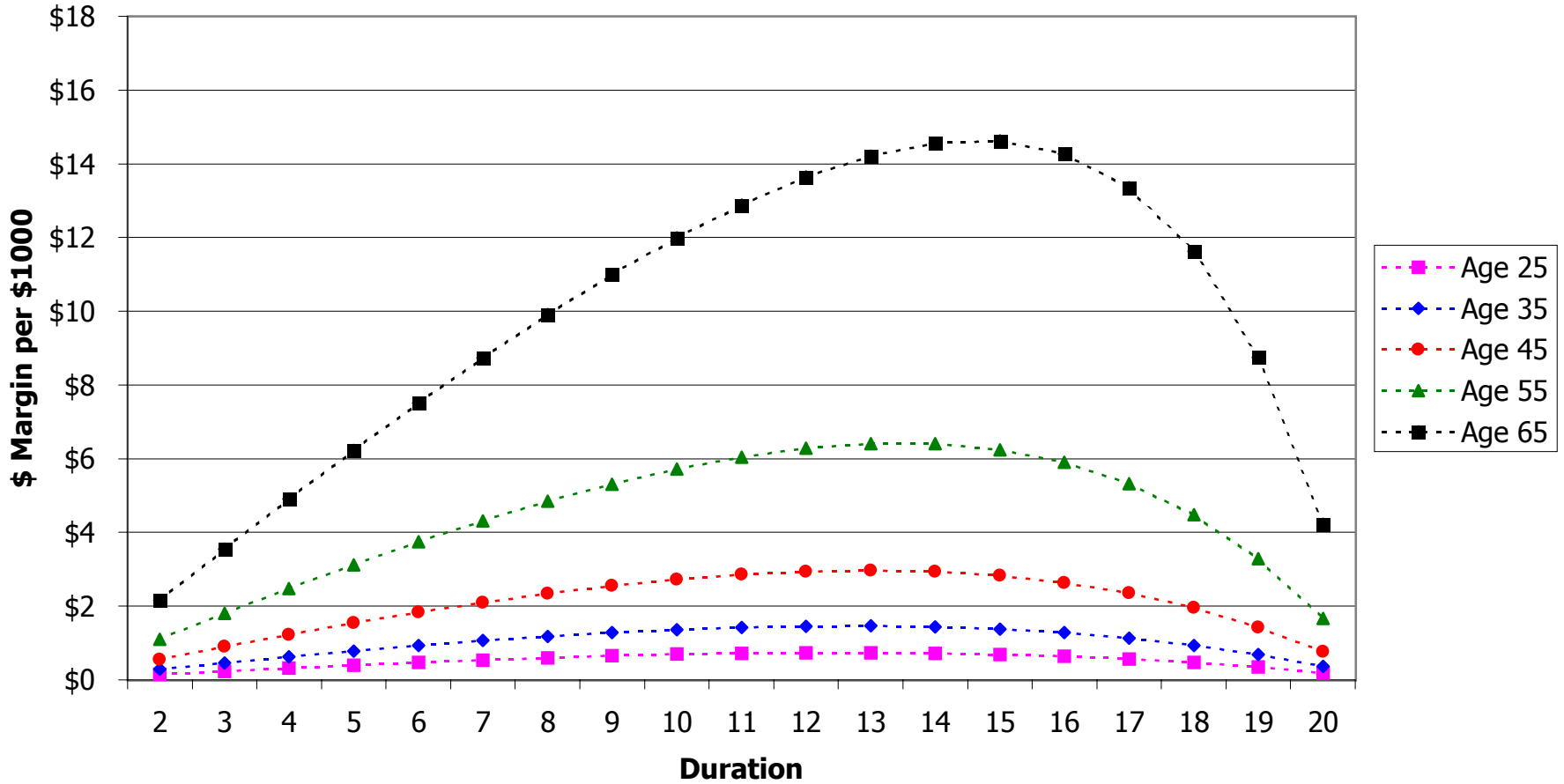
Stat Valuation Beta Net Prem Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Smoking Status
Level Premium 20 Year Term - Female - Select & Ultimate - 4.50%



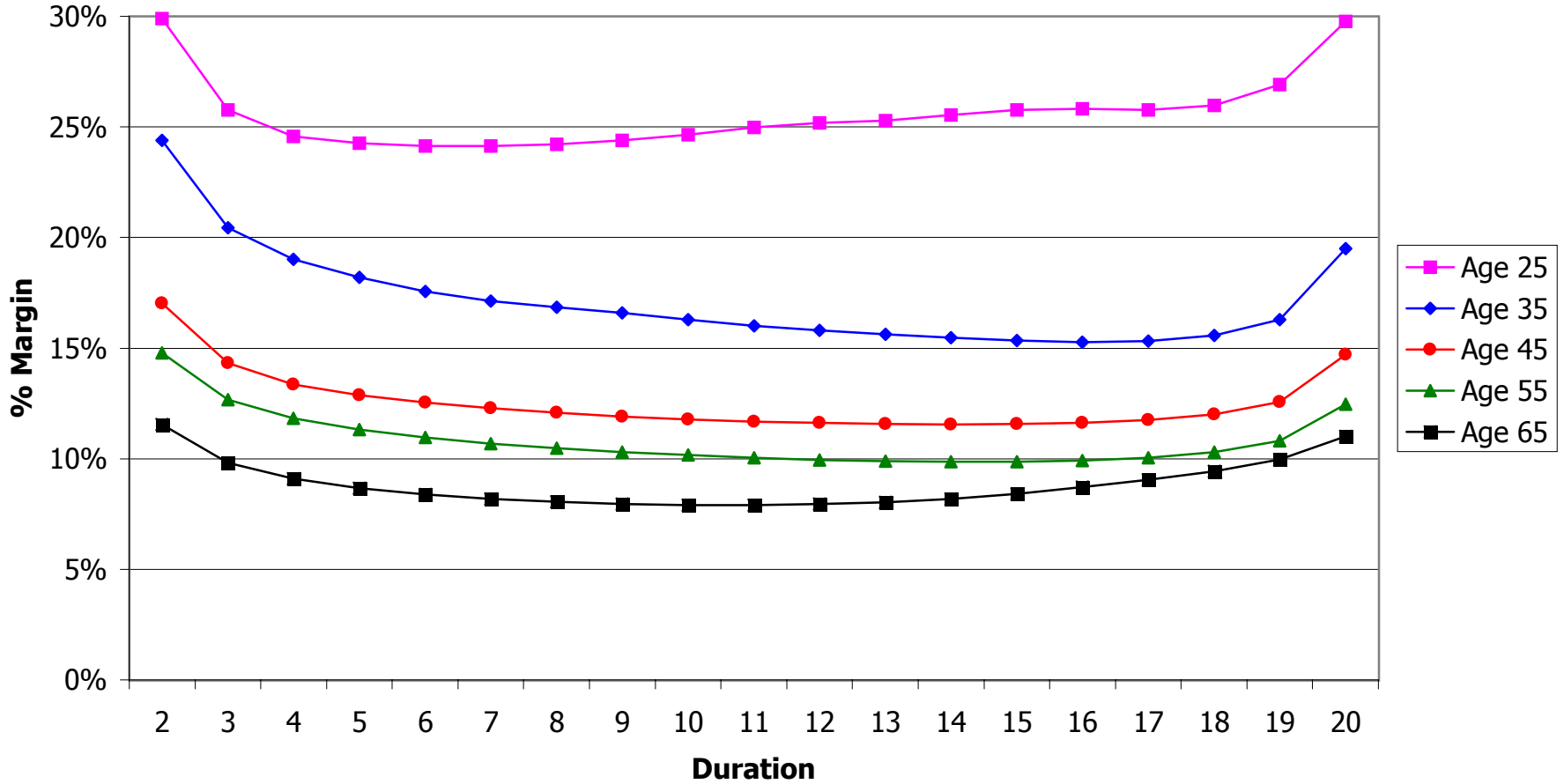
**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Issue Age**
Level Premium 20 Year Term - Male - Nonsmoker - Select & Ultimate - 4.50%



**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Issue Age**
Level Premium 20 Year Term - Male - Nonsmoker - Select & Ultimate - 4.50%

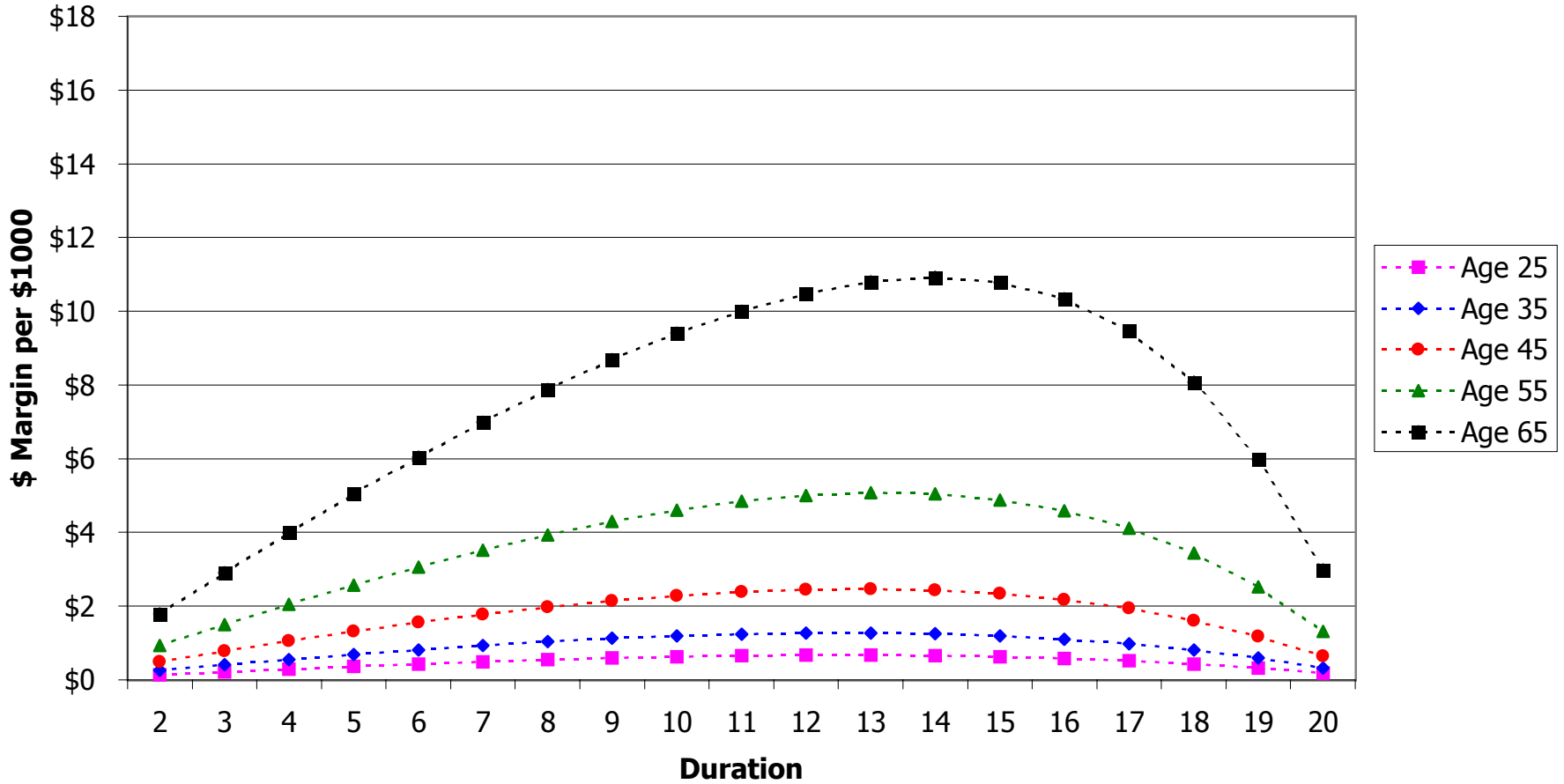


**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Issue Age**
Level Premium 20 Year Term - Female - Nonsmoker - Select & Ultimate - 4.50%

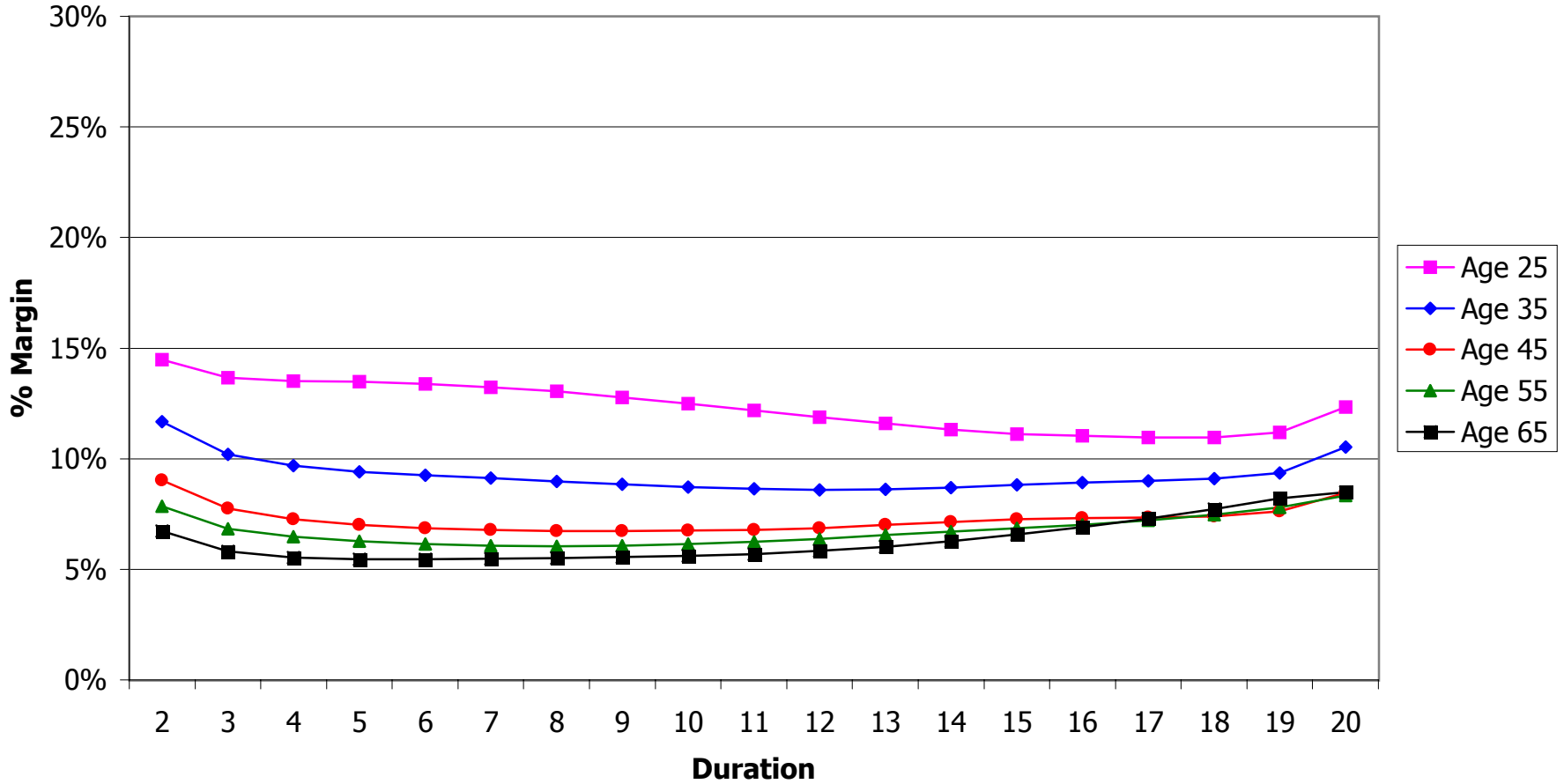


Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Issue Age

Level Premium 20 Year Term - Female - Nonsmoker - Select & Ultimate - 4.50%

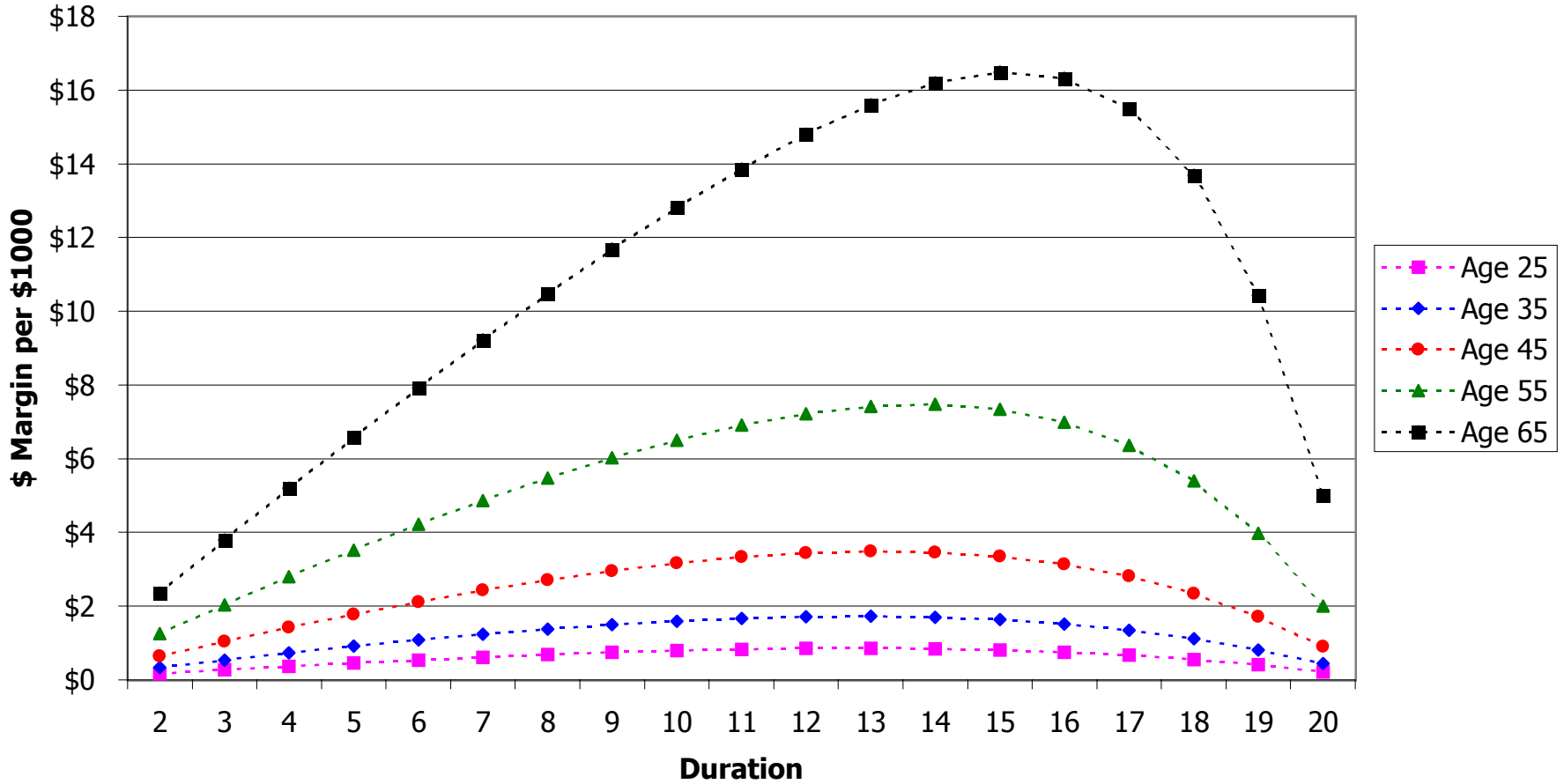


**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Issue Age
Level Premium 20 Year Term - Male - Smoker - Select & Ultimate - 4.50%**

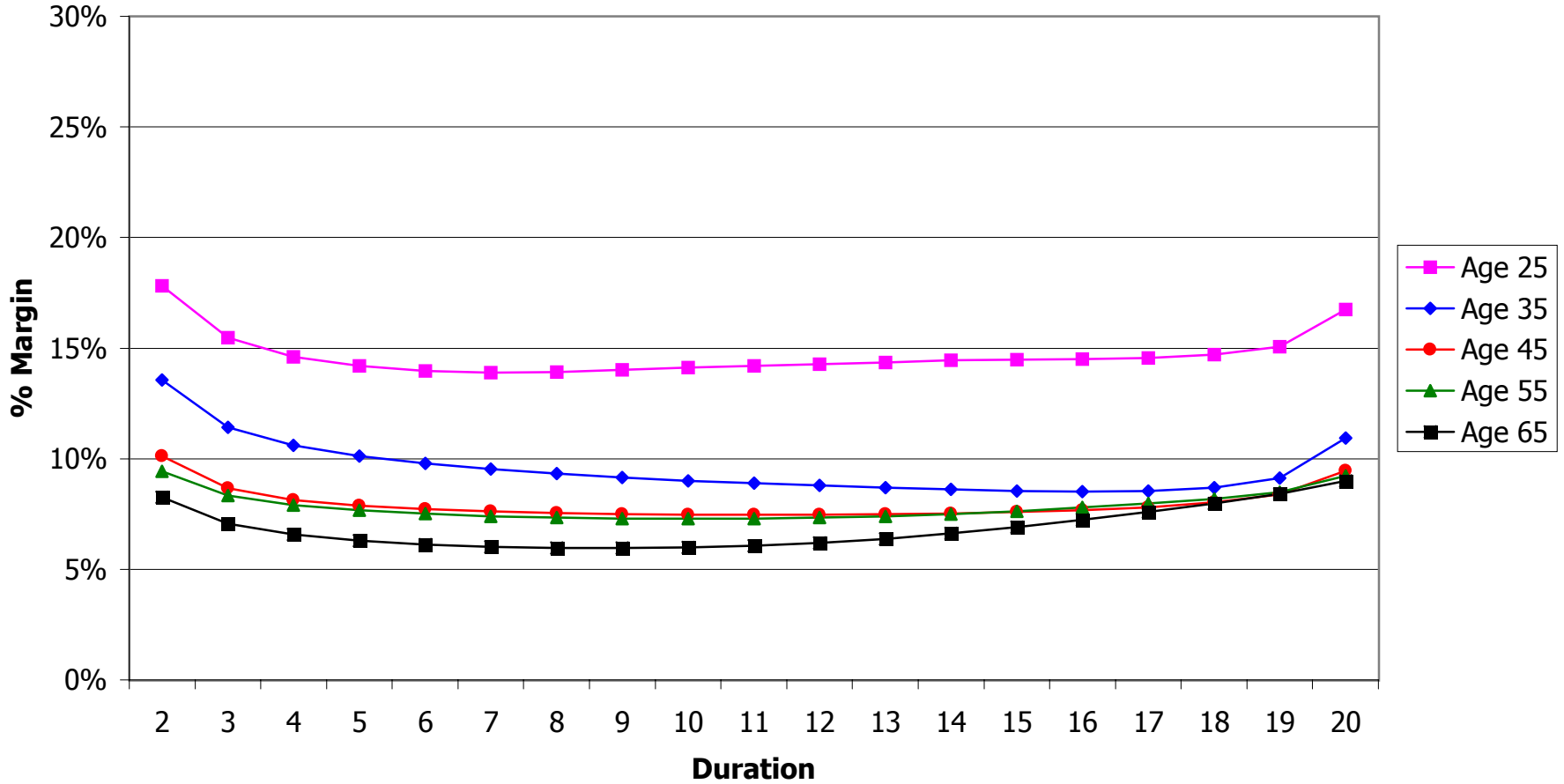


Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Issue Age

Level Premium 20 Year Term - Male - Smoker - Select & Ultimate - 4.50%

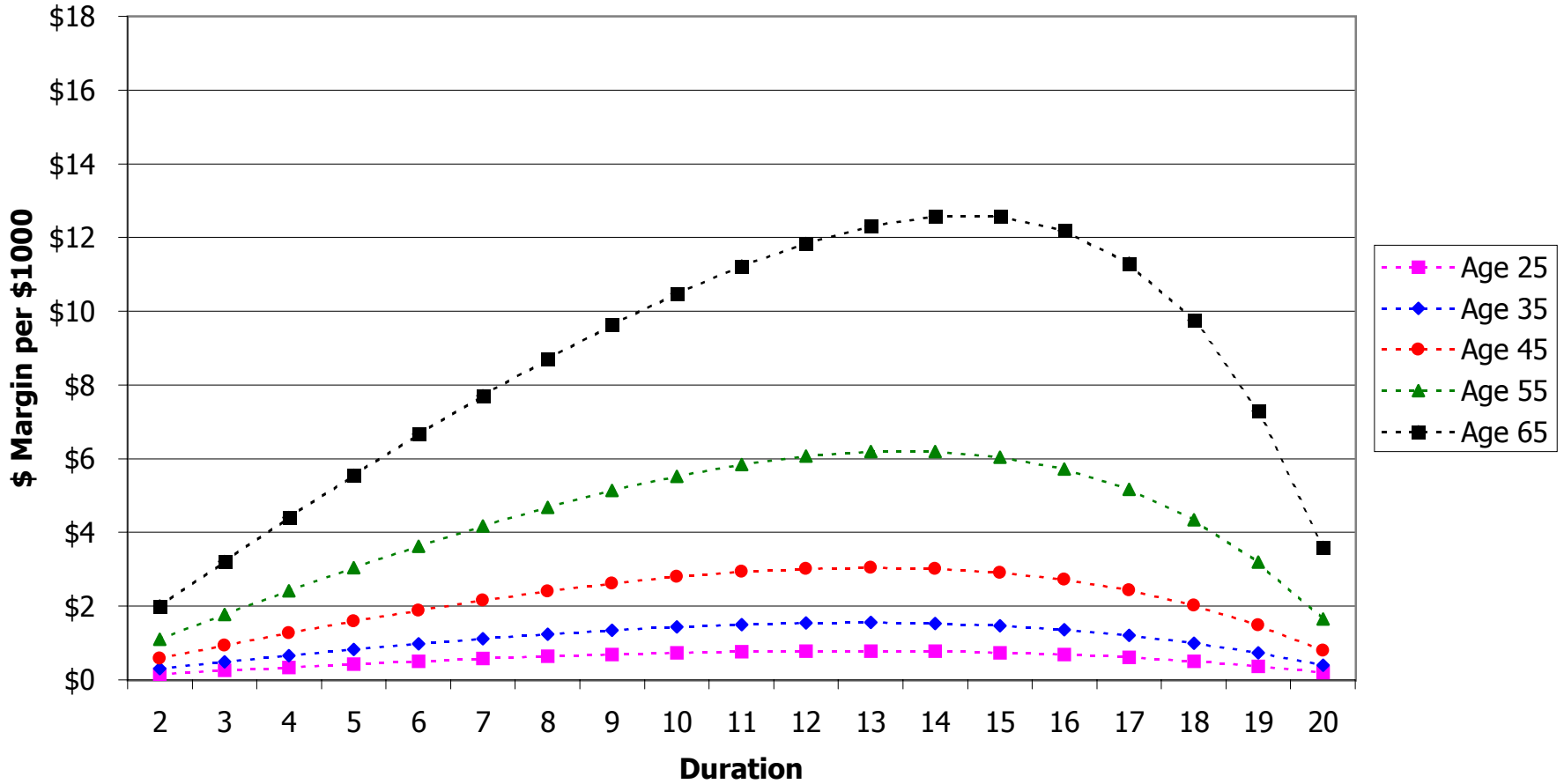


**Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT
Comparison by Issue Age**
Level Premium 20 Year Term - Female - Smoker - Select & Ultimate - 4.50%

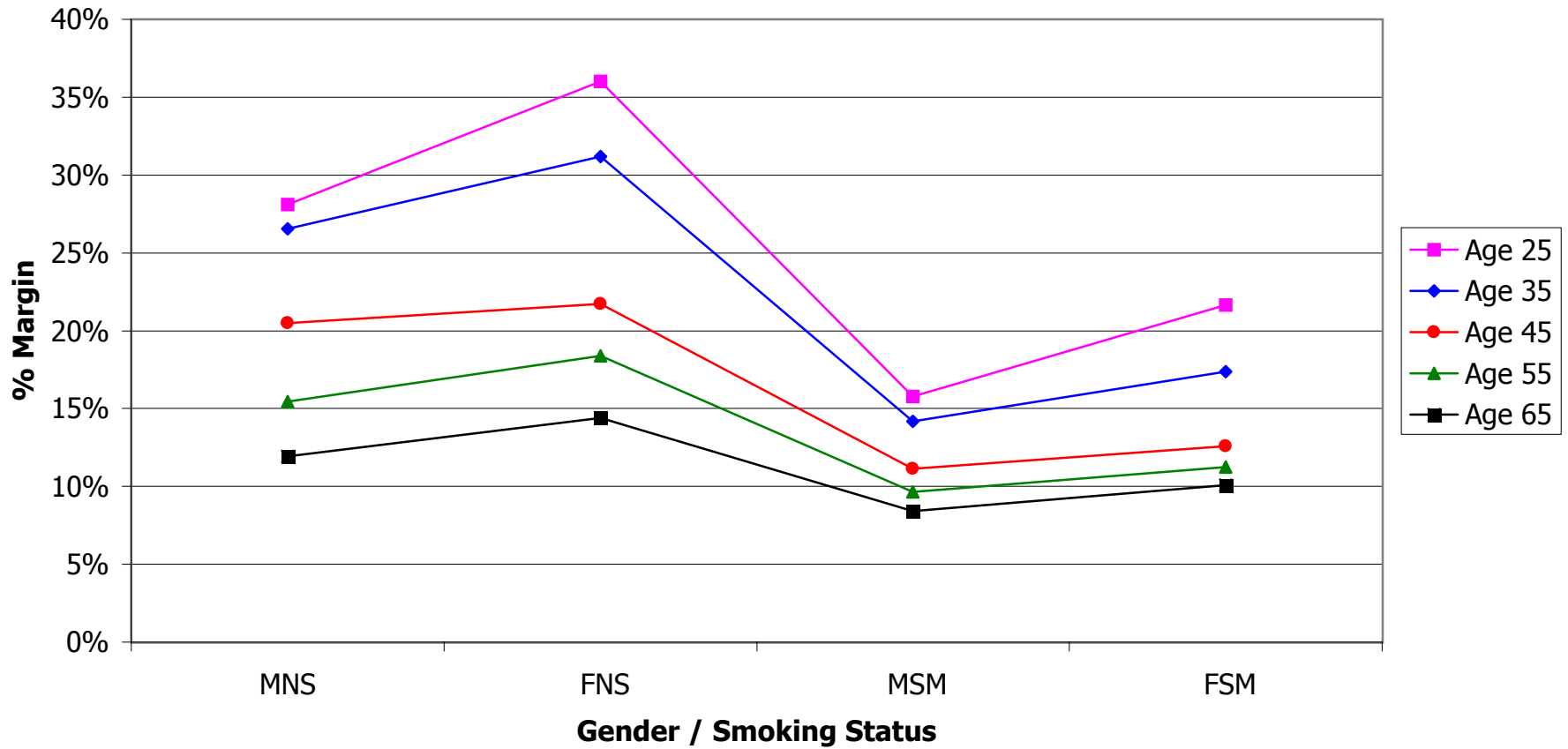


Statutory Mean Reserve Margins in Proposed 2001 CSO Over 2001 VBT Comparison by Issue Age

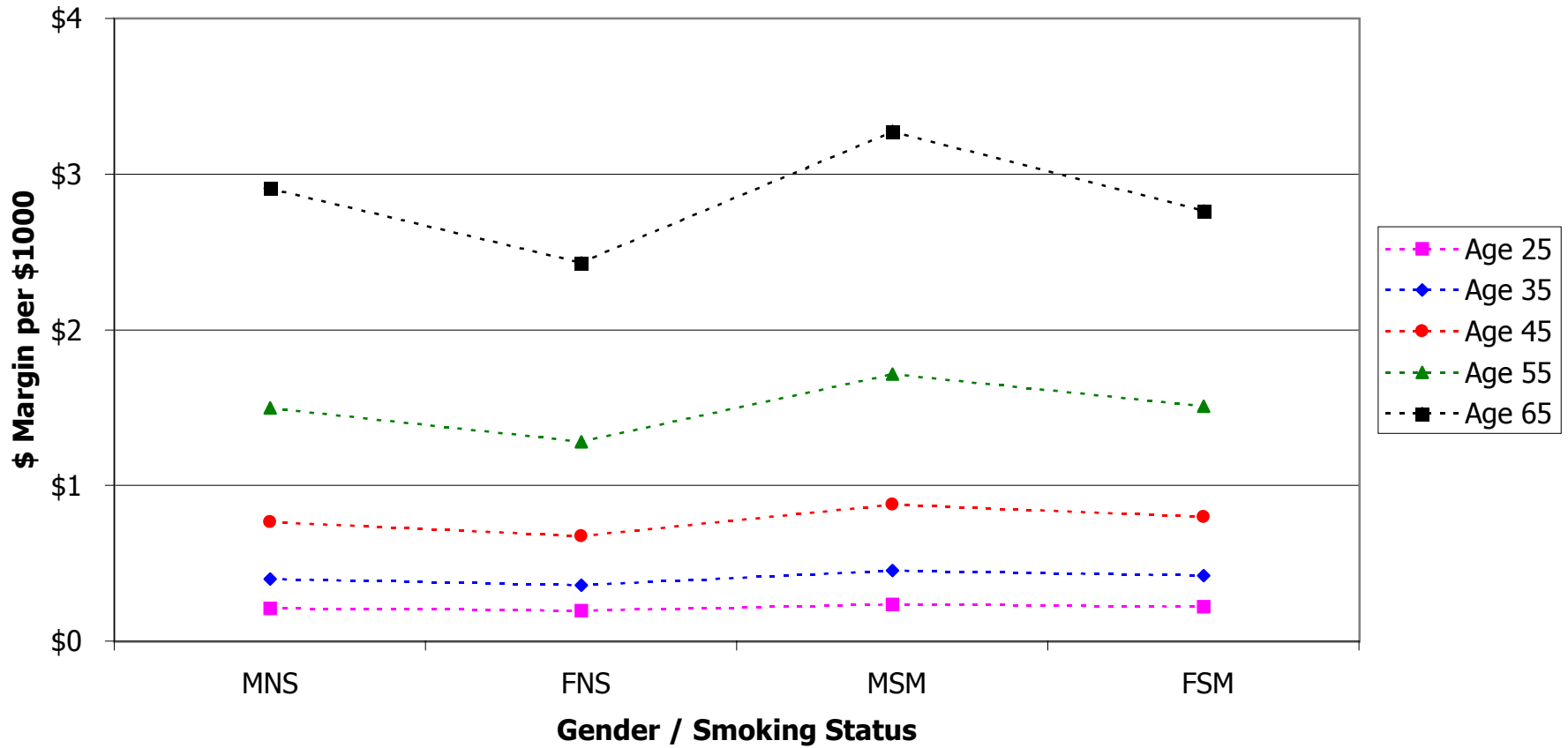
Level Premium 20 Year Term - Female - Smoker - Select & Ultimate - 4.50%



**Statutory Valuation Beta Net Premium Margins in Proposed 2001 CSO Over
2001 VBT
Comparison by Issue Age
Level Premium 20 Year Term - Select & Ultimate - 4.50%**



**Statutory Valuation Beta Net Premium Margins in Proposed 2001 CSO Over
2001 VBT
Comparison by Issue Age
Level Premium 20 Year Term - Select & Ultimate - 4.50%**



Appendix H

Loading Validation

In an effort to validate the relationship between various mortality loads, such as the nonsmoker load being generally larger than the smoker load when expressed as a percent but smaller when expressed in dollars per \$1,000, the Academy Task Force explored the purposes of the load as well as a hypothetical load based on a number of unknowns.

Purposes of the Load

There are a number of reasons for the load and the purpose of each gives some indication of the kind of margin that should be added.

1. **Confidence** -- The mortality represented by a valuation mortality table should be sufficient to cover the mortality underlying the study upon which the valuation table is based. If the study is based on limited data, a significant margin may be needed in order to assure that the resulting table covers all potential underlying mortality levels. The 1990-95 SOA mortality study was based on a significant amount of data, so the amount of load needed to produce sufficient confidence for the proposed 2001 CSO Tables is negligible.
2. **Company Variation** – The mortality represented by a valuation mortality table should be sufficient to cover the mortality expected to be experienced by most of the companies that will use the table. In the Academy Task Force's work, we have assumed that the table should be sufficient to cover the experience of 71 percent of the companies that will use it (this corresponds to the 15 percent overall load that the NAIC LHATF directed the Academy Task Force to use in the development of the proposed 2001 CSO Table).

The Academy Task Force spent considerable time attempting to evaluate the size of the margin necessary for company variation. Ideally, the Academy Task Force would have looked at the experience of the various companies that contributed to the study on a cell-by-cell basis and designed a table such that it covered the results of a given percentage of those companies. Unfortunately, while the aggregate amount of data the Academy Task Force had for the study was quite large, the amount of data available for individual companies for specific cells was, in many cases, quite small or even non-existent. The Academy Task Force was able to get an idea of the overall variation by company, but it did not believe that there was enough data to get a similar feel for groupings of the data.

The Academy Task Force discussed how company experience might vary from one company to the next. For the most part, one might guess that these differences are due to differences in underwriting, either the level of underwriting or the acceptance level. Within a particular company, different levels of underwriting are frequently expressed as percentages of standard. For example, a substandard class is typically expressed as a percentage of the standard class. Based on this logic, it would appear that the margin due to company variation should be expressed as a percentage of the base rate.

3. **Random Fluctuation** -- The table should be sufficient to cover random fluctuations in mortality experience that are expected in the mortality of the companies that will use it. In some respects, covering random fluctuation is the complement of the confidence issue. The confidence issue deals with random fluctuation in the industry experience underlying the table due to limitations in the industry experience. The random fluctuation issue deals with the variability in results expected by a particular company because the company covers a limited number of insureds.

The margin necessary for random fluctuation will not be a flat percentage of the mortality rate. In a binomial distribution, the standard deviation of the distribution is easily calculated. In general, since the standard deviation is a square root function, the standard deviation becomes a smaller percentage of the probability as the probability becomes higher. In other words, as the mortality rate increases there is less need for margin. This indicates that the margin for random fluctuation is not a percentage of the base rate, but rather a decreasing percentage of that rate as the rate goes up.

Some examples of this are shown in Table H-1. Columns 4 and 5 show the actual percentage load in the proposed 2001 CSO Table (obtained by dividing the proposed 2001 CSO Table by the 2001 VBT and subtracting one) for nonsmokers and smokers, respectively. Columns 6 and 7, show the ratio of the standard deviation to the mean for a binomial distribution with 10,000 lives exposed and mortality based on the 2001 VBT, for nonsmokers and smokers, respectively. That is,

$$\text{Ratios in columns 6 and 7} = \frac{\sigma}{\mu} = \frac{\sqrt{n \cdot q \cdot (1 - q)}}{n \cdot q} = \sqrt{\frac{(1 - q)}{n \cdot q}}$$

where n = number of lives and q = 2001 VBT mortality rate. This gives us a theoretical construct indicating the percentage load required in the proposed 2001 CSO Table to provide for mortality deviating up to one standard deviation from the expected.

Table H-1

**Comparison of Load in Select & Ultimate Proposed 2001 CSO Table
To Ratio of Binomial Standard Deviation to Binomial Mean
For Nonsmokers and Smokers
(Binomial Distribution Assumes 10,000 Lives)**

(1) Gender	(2) Issue Age	(3) Dur	(4) (5) 2001 CSO % Load		(6) (7) Binomial σ/μ Ratio	
			Nonsmoker	Smoker	Nonsmoker	Smoker
Male	35	1	71.0%	39.7%	56.8%	39.8%
		5	38.4	20.8	37.0	25.5
		10	30.0	16.0	27.7	18.8
		15	21.8	11.7	20.1	13.6
		20	19.2	10.5	15.9	10.8
		25	16.2	9.8	12.2	8.7
	55	1	65.5%	31.9%	29.0%	18.7%
		5	30.2	15.9	17.0	11.3
		10	16.7	9.8	10.5	7.3
		15	13.2	8.7	7.6	5.6
		20	11.0	8.2	5.6	4.4
		25	9.7	8.2	4.2	3.5
Female	35	1	95.2%	60.5%	69.0%	51.3%
		5	57.8	33.7	47.1	33.5
		10	36.4	20.1	31.8	22.1
		15	25.5	14.2	22.8	15.6
		20	19.5	10.9	17.0	11.6
		25	16.0	9.6	13.1	9.2
	55	1	74.2%	33.8%	32.8%	20.4%
		5	33.8	16.7	19.3	12.4
		10	21.7	12.2	13.0	8.8
		15	15.3	9.8	9.1	6.5
		20	12.4	9.1	6.7	5.2
		25	11.6	8.8	5.3	4.1

Table H-1 demonstrates that, for a binomial distribution, the ratio of the standard deviation to the mean decreases as the underlying mortality rate increases. Consistent with this observation, the percentage load in the proposed 2001 CSO Table was constructed to decrease as the mortality increases.

- 4. Unknown Variation** -- A valuation mortality table must cover not only expected results, but also a range of unexpected results. Reserves are intended to assure that a sufficient amount of money is retained in the early years to pay claims in the later years, but the mortality experience of the future is not known. A margin should be added so that the table will be sufficient most of the time. Examples of the kind of unknown variation that could occur include one-time events, such as a flu epidemic, as well as changes in overall mortality levels that might occur due to things like AIDS or changes in general health conditions.

The margin for unknown variation is the largest uncertainty. By its very nature, it is unknown. In conversations about potential mortality aberrations, actuaries typically talk in terms of extra deaths per thousand. On the other hand, it is not inconceivable that changes in mortality levels could happen that could simply increase all mortality rates by a particular percentage.

The Academy Task Force’s chosen formula has margins that increase in absolute terms, but decrease in percentage terms, as age increases. The margins also increase in absolute terms as the expectation of life decreases.

Development of a Hypothetical Loading Formula

Based on the four purposes of loading discussed above, a hypothetical loading formula was developed. The Academy Task Force did not use this formula in the development of the proposed 2001 CSO Table, but it did use this formula to validate the relationship in loads between smokers and nonsmokers.

The hypothetical loading formula is as follows:

$$q_{[x]+t}^{\text{Loaded}} = [q_{[x]+t}^{\text{VBT}} \cdot (1 + m_1) + m_3] \cdot (1 + m_2)$$

where: $q_{[x]+t}^{\text{Loaded}}$ = hypothetically loaded mortality rate
 $q_{[x]+t}^{\text{VBT}}$ = mortality rate from 2001 Valuation Basic Table
 m_1 = loading factor that relates to company variation
 m_2 = loading factor that relates to random fluctuation
 m_3 = loading factor that relates to unknown variation

The m_2 values are based on the binomial standard deviation over the binomial mean for 100,000 lives with the binomial q based on the underlying VBT rate. If the m_1 value was set at 9% (a reasonable value to account for company variation) and the m_3 value was set at 0.10 extra deaths per 1,000 (a reasonable number of extra deaths to account for unknown variation), hypothetically loaded mortality rates are produced that are reasonably close to the 2001 CSO Table rates. The hypothetical mortality rates are within 3 percent of the 2001 CSO Table’s mortality rates in 36 of the 48 cells shown in Table H-2 on the following page, within 5 percent in 40 of the 48 cells, and within 10 percent in 45 of the 48 cells.

Table H-2

Results of Hypothetical Loading Formula

M/F	NS/SM	x	t	$q_{[x]+t}^{VBT}$	m_1	m_2	m_3	$q_{[x]+t}^{Loaded}$	$q_{[x]+t}^{CSO}$	Difference	
										#	%
M	NS	35	1	.00031	.09	.180	.0001	.00052	.00053	-.00001	-3%
			5	.00073	.09	.117	.0001	.00100	.00101	-.00001	-1%
			10	.00130	.09	.088	.0001	.00165	.00169	-.00004	-2%
			15	.00248	.09	.063	.0001	.00298	.00302	-.00004	-1%
			20	.00396	.09	.050	.0001	.00464	.00472	-.00008	-2%
			25	.00668	.09	.039	.0001	.00767	.00776	-.00009	-1%
		55	1	.00119	.09	.092	.0001	.00153	.00197	-.00044	-23%
			5	.00344	.09	.054	.0001	.00406	.00448	-.00042	-9%
			10	.00904	.09	.033	.0001	.01028	.01055	-.00027	-3%
			15	.01685	.09	.024	.0001	.01891	.01908	-.00017	-1%
			20	.03067	.09	.018	.0001	.03413	.03405	.00008	0%
			25	.05486	.09	.013	.0001	.06068	.06016	.00052	1%
	SM	35	1	.00063	.09	.126	.0001	.00089	.00088	.00001	1%
			5	.00154	.09	.081	.0001	.00192	.00186	.00006	3%
			10	.00282	.09	.059	.0001	.00336	.00327	.00009	3%
			15	.00539	.09	.043	.0001	.00623	.00602	.00021	4%
			20	.00848	.09	.034	.0001	.00966	.00937	.00029	3%
			25	.01306	.09	.027	.0001	.01472	.01434	.00038	3%
55		1	.00285	.09	.059	.0001	.00340	.00376	-.00036	-10%	
		5	.00773	.09	.036	.0001	.00883	.00896	-.00013	-1%	
		10	.01853	.09	.023	.0001	.02076	.02034	.00042	2%	
		15	.03083	.09	.018	.0001	.03431	.03350	.00081	2%	
		20	.04863	.09	.014	.0001	.05385	.05264	.00121	2%	
		25	.07584	.09	.011	.0001	.08368	.08205	.00163	2%	
F	NS	35	1	.00021	.09	.218	.0001	.00040	.00041	-.00001	-2%
			5	.00045	.09	.149	.0001	.00068	.00071	-.00003	-4%
			10	.00099	.09	.100	.0001	.00130	.00135	-.00005	-4%
			15	.00192	.09	.072	.0001	.00235	.00241	-.00006	-2%
			20	.00344	.09	.054	.0001	.00406	.00411	-.00005	-1%
			25	.00583	.09	.041	.0001	.00672	.00676	-.00004	-1%
		55	1	.00093	.09	.104	.0001	.00123	.00162	-.00039	-24%
			5	.00269	.09	.061	.0001	.00322	.00360	-.00038	-11%
			10	.00589	.09	.041	.0001	.00679	.00717	-.00038	-5%
			15	.01201	.09	.029	.0001	.01357	.01385	-.00028	-2%
			20	.02154	.09	.021	.0001	.02407	.02421	-.00014	-1%
			25	.03453	.09	.017	.0001	.03838	.03852	-.00014	0%
	SM	35	1	.00038	.09	.162	.0001	.00060	.00061	-.00001	-2%
			5	.00089	.09	.106	.0001	.00118	.00119	-.00001	-1%
			10	.00204	.09	.070	.0001	.00249	.00245	.00004	1%
			15	.00409	.09	.049	.0001	.00478	.00467	.00011	2%
			20	.00743	.09	.037	.0001	.00850	.00824	.00026	3%
			25	.01177	.09	.029	.0001	.01330	.01290	.00040	3%
55		1	.00240	.09	.064	.0001	.00289	.00321	-.00032	-10%	
		5	.00646	.09	.039	.0001	.00742	.00754	-.00012	-2%	
		10	.01267	.09	.028	.0001	.01430	.01422	.00008	1%	
		15	.02296	.09	.021	.0001	.02565	.02521	.00044	2%	
		20	.03619	.09	.016	.0001	.04018	.03950	.00068	2%	
		25	.05614	.09	.013	.0001	.06209	.06110	.00099	2%	

Conclusion

Based on this analysis, it is clear that a number of acceptable margins could be developed, and that there is no one, appropriate margin. Some purposes of a load indicate that a percentage of the base rate is appropriate, while other purposes show that a flat amount may make more sense. Based on this analysis, the Academy Task Force developed a loading formula that increases in dollars per \$1,000 as the underlying mortality rate increases, but decreases when expressed as a percent as the underlying mortality rate increases.

Appendix I

Reserve Analysis

Reserves produced by the proposed 2001 CSO Table were compared to reserves produced on a realistic basis, as described below.

Approach

The comparison reserves used in this report were set using a 1-year preliminary term reserve calculation involving interest, mortality and, (for term insurance), lapse. These reserve calculations were done on a continuous basis and mean reserves were used for the comparisons. For UL, reserves are dependent on the accumulated value within the contract. We used the product of a major writer of UL to determine the accumulation values. The premium level selected was that which produced an accumulation value near zero at age 100, given illustrated charges and credits (COIs, expense loads, credited interest, etc.). Note, that reserves for UL are equal to the greater of the accumulation value and the calculated reserve.

The Academy Task Force initially considered the use of Gross Premium Reserves (GPR) for this comparison. However, after discussion, we did not feel that a GPR "test" would be appropriate.

The problem with a GPR test is that it is a "gross" valuation, recognizing all the elements that affect pricing and experience. For an individual company, there is a relationship between the pricing assumptions and the emergence of experience. To the extent there are differences, those differences would be reflected in the gross premium reserve and exert a discipline on the company through the reserving process. The problem with an industry GPR is in the differences. For an industry calculation, both the pricing and the expected experience have to be set by assumptions. The results can be "controlled" by how the pricing and experience are set in relation to one another.

This control of the results can be eliminated if the assumptions for expenses (used in a broad sense to include expenses, taxes, cost of capital, etc.) and profits are eliminated from the equation. If it is assumed that the pricing and experience assumptions for these factors are equal, except for a first year allowance to recognize that expenses are front ended, the resulting GPR reduces to a reserve calculation using only interest, mortality, and lapse. The Academy Task Force felt this was a better value for comparison.

The comparison did not consider deficiency reserves because we did not have gross premium assumptions upon which to base them.

Assumptions are based on industry statistics, but were chosen to simulate the experience of companies that are at approximately the 85th percentile in terms of needed reserve level. In other words, according to our assumptions, only 15 percent of companies would need higher reserves.

Comparisons were made using only the ultimate, composite (of smokers and nonsmokers) table. As noted in the report, tests of the valuation table demonstrated that reserves produced by the new select and ultimate tables were generally greater than those produced by the ultimate table alone. As a result, if reserves produced by the ultimate table are reasonable in relation to the comparison reserves, reserves produced by the select and ultimate tables will be reasonable as well. The report also notes that aggregate reserves for a block of business are nearly the same if either the smoking distinct tables or the composite table is used. Thus, if the composite table produces reasonable reserves in relation to the comparison reserves, the smoking distinct tables will produce reasonable reserves also.

Two forms of reserve analysis were done:

- Comparison reserves calculated using 85th percentile values for each assumption (interest, mortality and sometimes persistency) were compared to statutory reserves produced by the table. This comparison was done without aggregating (i.e., on a cell-by-cell basis).
- We also determined how much a particular assumption needed to change, while holding the other assumptions at the 85th percentile level, to produce comparison reserves that were equal to the statutory reserve produced by the new table. This was done with aggregation at the plan level (20-year level premium term, whole life, and universal life) for a model office company.

Assumptions

Assumptions necessary to calculate the comparison reserves were needed for mortality, interest, and lapse. Our original intent was to consider both variation by company and variation in experience over time. We were able to find distributions representing variation by company for all three factors. However, we only found a suitable distribution of variation over time for the interest assumption. As a result, the interest rate considers variation over time but the lapse and mortality assumptions do not.

To set the interest assumption, we started with a value that represented the environment that might be expected to exist at the 85th percentile of all possible futures. Then we determined where the 85th percentile company would fall relative to that overall environment. For the other assumptions, we made a conservative assumption as to the environment using our collective judgment and then used our data to find where the 85th percentile company would be relative to that environment.

Mortality

Assumptions for the variation in mortality by company were developed by examining the spread of experience between the companies that contributed experience to the 1990-95 Basic Table. The standard deviation, by company, of the actual to expected mortality ratios exhibited by these 21 companies was 20 percent.

Assumptions, for the variation in mortality over time, were more difficult to develop. The overall trend in mortality has been downward for some time, but some feel that changes in underwriting that are unlikely to be repeated are a major part of the cause of the improvement. In addition, it is not likely that this trend is uniform by age. Finally, any view of the future should consider adverse deviations such as the 1917 flu epidemic or AIDS. Given the unknowns, we opted to use mortality that does not increase or decrease over time, assuming that the downward trend will absorb any catastrophic situations. (Note, that the 2001 VBT anticipates improvements in mortality through 2001, but does not provide for additional improvement thereafter.)

Combining these two sets of assumptions, lead to a base case assumption of 120 percent of the 2001 VBT for all years.

The reserve analysis outlined in this Appendix was only done using the ultimate, composite (of smokers and nonsmokers) table.

Interest

To gain insights into company variation in investment return, the Academy Task Force examined variations in interest earnings by company over the past 5 years using the NAIC database. We found the following:

Table I-1
Average Net Investment Income
1995-1999

80 th Percentile	7.90%
50 th Percentile	7.18%
20 th Percentile	6.09%

(Results were expressed in this fashion because some large outliers had an undue effect on standard deviation calculations.)

If one assumes that variation in interest rates by company is normally distributed, the difference between the 20th percentile and the 80th is 1.68 standard deviations. This suggests that the standard deviation of this distribution is about 1 percent ($[7.90-6.09]/1.68=1.08$, rounded down).

Information on the variability in interest rates over time was obtained from an analysis of the results of the interest rate model used for C3 testing, based on the 12/31/00 yield curve. This model produces treasury rates at various durations. We focused on 10-year maturities as most representative of how insurance companies invest. The key statistic reviewed was the geometric mean over 30 years for each of the 200 scenarios. The mean was 6.6 percent with a standard deviation of 1.8 percent.

The final assumption, needed to develop the interest rate, concerned the fact that companies will earn more than a treasury rate on their investments. We added a corporate spread of 70 BP to the treasury rates to get a number that is more comparable to what companies might earn.

Combining these assumptions yields an interest rate assumption of 4.5 percent for all years. This number was calculated as the mean of the projection for the 30 year geometric mean less one standard deviation in interest rate movement over time, less one standard deviation in interest rate variation by company, plus the corporate spread ($6.6\% - 1.8\% - 1.0\% + 0.7\% = 4.5\%$).

Lapse

The comparison reserves allowed for consideration of lapse rates. For level term insurance, early lapse reduces the overall cost of insurance and will reduce the necessary reserve.

Data on variation in term insurance lapse rates by company was obtained from the LIMRA, International study, 1993-94 UNITED STATES LAPSES BY DURATION AND PRODUCT LINE: LONG-TERM ORDINARY LAPSE SURVEY*. Our overall focus was on lapse rates by duration. We were particularly interested in the portion of the report that gave information on lapse rates for different quartiles of the company population contributing to the study.

Using the LIMRA data, we calculated the standard deviation of the variation in lapse rates by company for each duration grouping. While information was available for the variation in lapse rates by issue age, we used the data for all ages combined to simplify the calculations. The following table shows the results.

Table I-2
Level Term Lapse Rates by Volume¹

<u>POLICY</u> <u>YEAR</u>	<u>1st</u> <u>Quartile</u>	<u>Median</u>	<u>3rd</u> <u>Quartile</u>	<u>Std</u> <u>Dev²</u>	<u>85th</u> <u>%³</u>
1	9.1%	10.3%	14.0%	3.6%	6.7%
2	8.1%	10.4%	13.7%	4.2%	6.2%
3-5	8.6%	9.7%	14.9%	4.7%	5.0%
6-10	4.9%	7.1%	9.7%	3.6%	3.5%
11+	4.0%	6.5%	8.2%	3.1%	3.4%

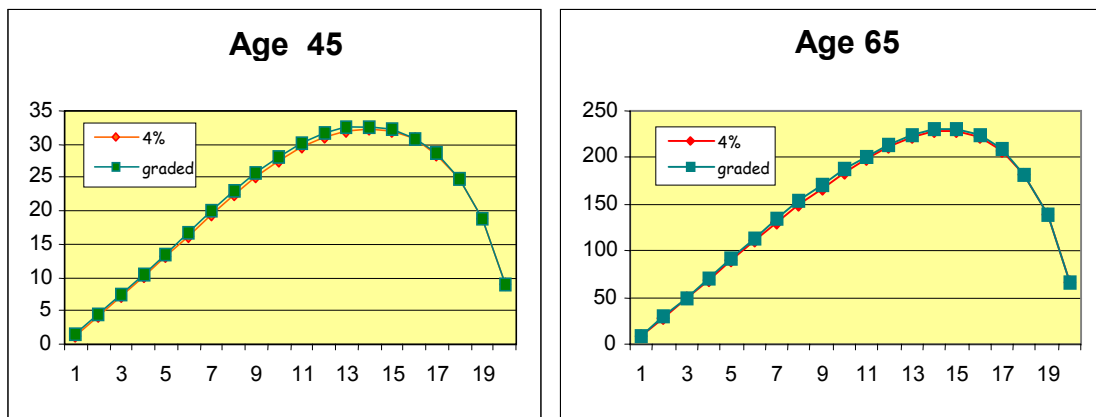
¹ Source: LIMRA International

² Standard Deviation is calculated as (3rd quartile - 1st quartile)/1.35

³ 85th percentile is calculated as one standard deviation under the median

In order to simplify the calculation of comparison reserves, lapse rates that were level by duration, were desirable. We did tests comparing reserves calculated using the values in the right-hand column above to those based on a level 4 percent. The results of those tests are shown below. As the charts show, there is little difference between the reserves calculated with either assumption. As a result, we opted for a level 4 percent lapse rate as representative of the graded scale.

Charts I-1a – I-1b
20 Year Level Premium Term Comparison Reserves by Lapse Rate
Male Lives

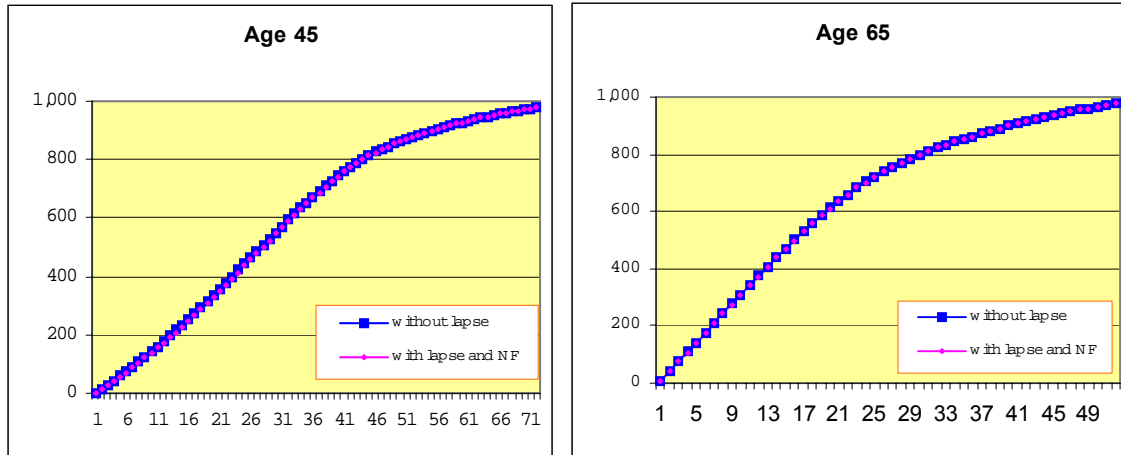


As noted earlier, we were unable to get information on the volatility of lapse rates over time. Obviously, lapse rates will vary over time with changes in the environment for insurance. For example, reductions in term insurance prices during the 1990's probably caused increased lapse rates during that time period. However, given that we had no information upon which to build a distribution, we simply assumed that lapse experience doesn't change over time.

Upon review of these two sets of assumptions, the Academy Task Force decided to use a level lapse rate of 4 percent for term.

For permanent insurance, the presence of nonforfeiture values reduces the effect of lapsation on reserve values. If the nonforfeiture value is assumed to be equal to the reserve, lapse will have no effect on insurance costs as the reserve released will be equal to the benefit paid. Thus, the Academy Task Force considered leaving lapse rates out of the calculation of comparison reserves for permanent insurance. However, in practice cash values are often less than reserves. The task force ran tests using a nonforfeiture value interest rate that was 1 percent greater than the valuation interest rate, along with a level lapse rate of 4 percent, to determine if ignoring lapse was indeed a conservative approach. Results of this test are shown below for selected cells.

Charts I-2a – I-2b
Comparison of Whole Life Comparison Reserves for Male Lives
With and Without Lapse



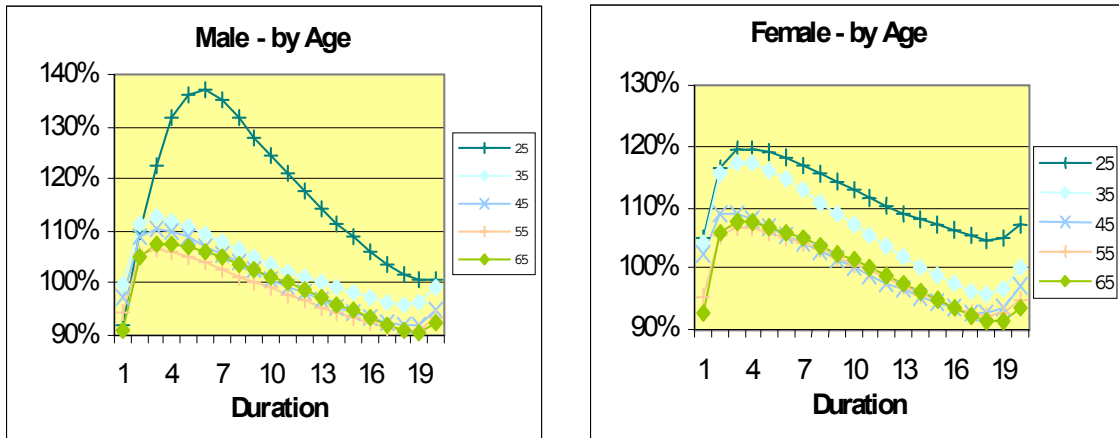
As these charts show, if there is any material difference at all, using reserves calculated without a lapse assumption is the conservative approach. As a result, we opted for the simpler approach of ignoring lapses.

For universal life, we felt that a lapse rate similar to that for term insurance was appropriate. However, the model that was available to us was somewhat limited and did not allow for easy consideration of lapse rates. As a result, we used an 8.5 percent interest rate assumption to simulate the effect of a 4.5 percent interest rate and a 4 percent lapse rate.

Analysis by Cell

As noted above, the analysis by cell, compares statutory reserves produced by the new table to the comparison reserves. This comparison is done on a cell by cell basis for each duration, but only on an ultimate basis. Results of the comparison for term insurance are shown below.

Charts I-3a – I-3b
Ratio of Statutory Reserves Based on the New Table to Comparison Reserves for 20 Year Level Premium Term Insurance



For both men and women, statutory reserves using the new table are higher than the comparison reserves in most of the early durations and a little lower at the later durations. This effect is more pronounced at the younger ages and for males.

The following table shows comparative results for a model of a block of term business. This model is described in Appendix D. For each cell in the model, reserves were calculated for a block of business determined by assuming 5 percent sales increases and 4 percent lapse each year. All the cells in the block were then weighted together using the sales distribution statistics obtained from LIMRA and the results were analyzed after various time periods.

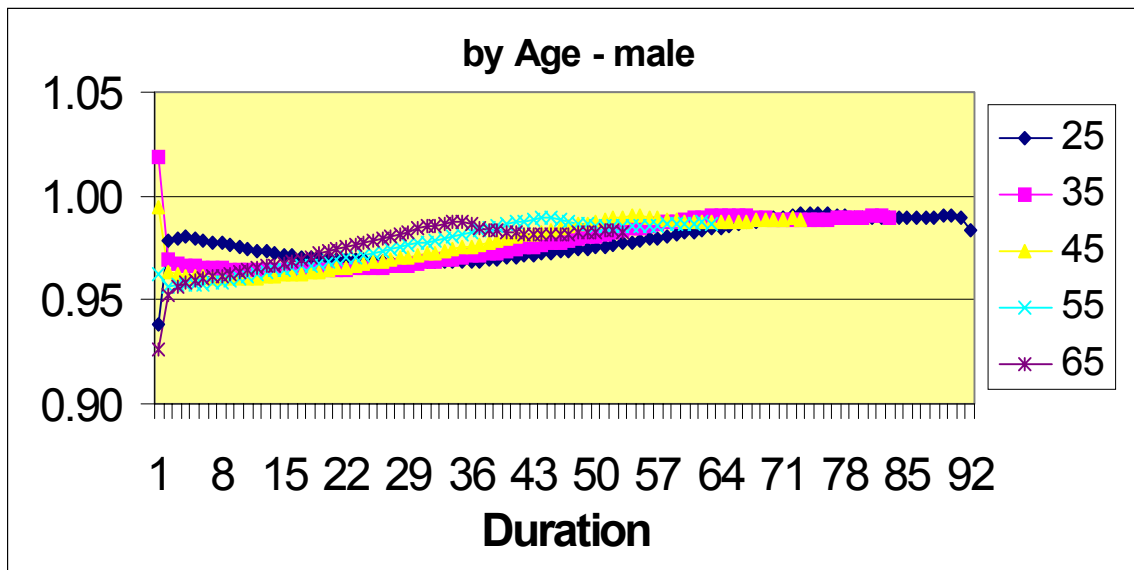
Table I-3
Comparison of Statutory Reserves Based on the New Table and Comparison Reserves for 20 Year Level Premium Term Insurance

	Male	female	both
After 5 years	107.6%	108.9%	107.8%
After 10 years	104.9%	106.2%	105.1%
After 15 years	102.0%	103.3%	102.2%
After 20 years	100.6%	101.9%	100.8%

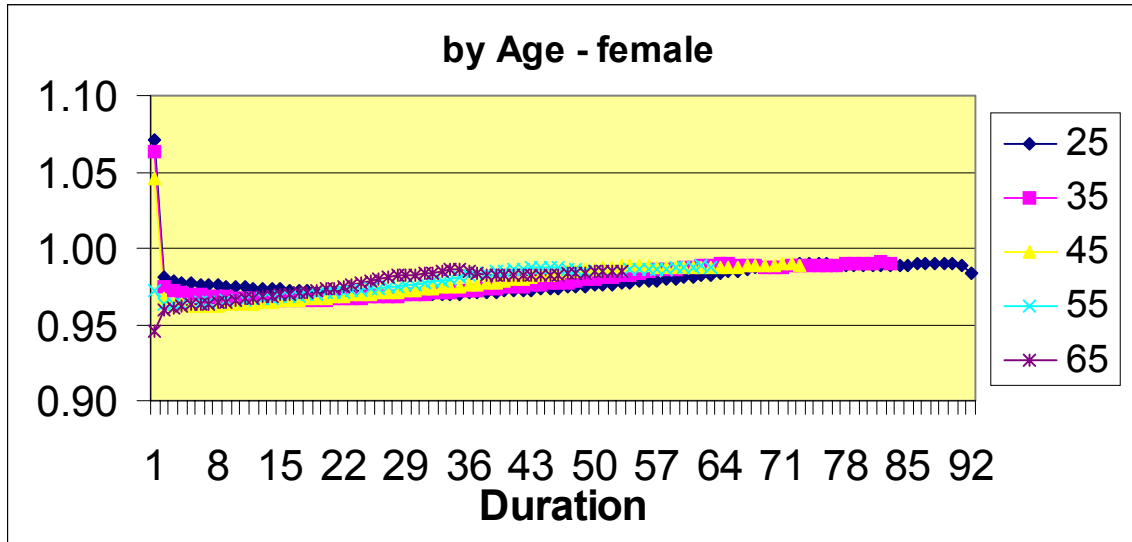
This analysis shows that the reserves produced by the proposed table are greater than the comparison reserves for the block of term insurance. Additional detail of the results of the analysis of term insurance can be found in tables I-9 and I-10.

Results for permanent insurance are summarized below.

Chart I-4a
Comparison of Statutory Reserves Based on the New Table and
Comparison Reserves for Whole Life Insurance



**Chart I-4b
Comparison of Statutory Reserves Based on the New Table and
Comparison Reserves for Whole Life Insurance**



For permanent insurance, the statutory reserves produced using the new table are slightly lower than the comparison reserves. Ratios range from 95 percent to 99 percent for both males and females with the lower numbers at the early durations and the higher numbers at the higher durations. The following table shows comparison results on an overall basis based on a model office calculation like that outlined above for term insurance.

**Table I-4
Comparison of Statutory Reserves Based on the New Table and
Comparison Reserves for Whole Life**

	Male	female	both
After 10 years	96.4%	96.7%	96.5%
After 20 years	96.5%	96.8%	96.6%
After 30 years	96.6%	96.9%	96.7%
After 40 years	96.8%	97.0%	96.9%

While these ratios are less than 100 percent, they are acceptable since the whole life comparison reserves assume that there are no lapses. As shown later in this section (see Table I-6 and the paragraph following it), had the 85th percentile lapse assumption (4 percent) been included in the analysis of whole life reserves, then the statutory reserves would be at least as large as the comparison reserves. Additional detail of the results of the analysis of whole life insurance can be found in tables I-7 and I-8.

Results for level premium to zero UL are shown below. This plan has reserves that are calculated and then compared to the cash value. The greater of the two is held. For a typical plan, the cash value floor takes over at a relatively early duration. Before that, reserves produced by the new table are substantially higher than the comparison reserves.

Chart I-5a
Comparison of Statutory Reserves Based on the New Table and Comparison Reserves for UL with a Level Premium to Produce a Zero Value at Age 100

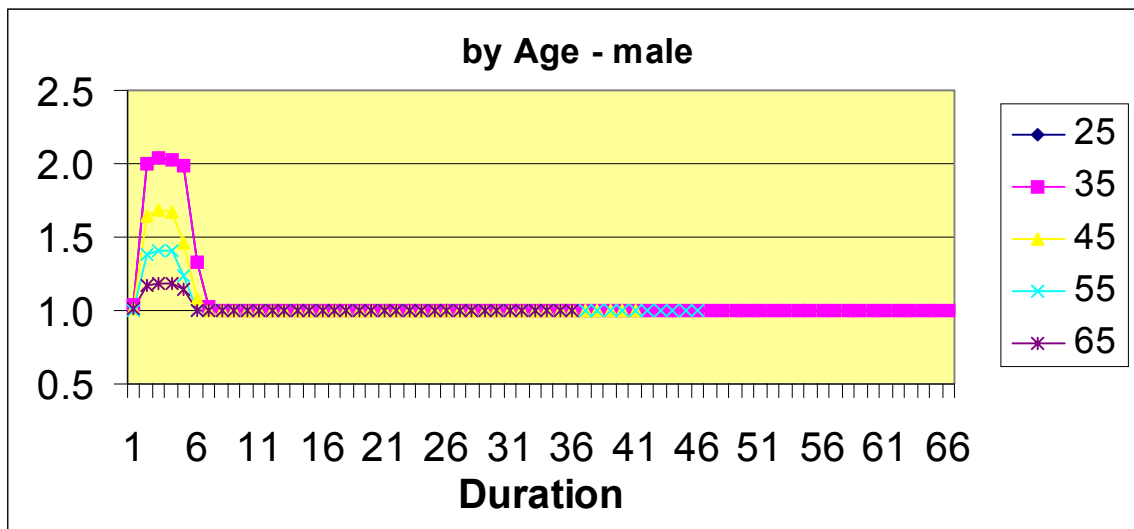
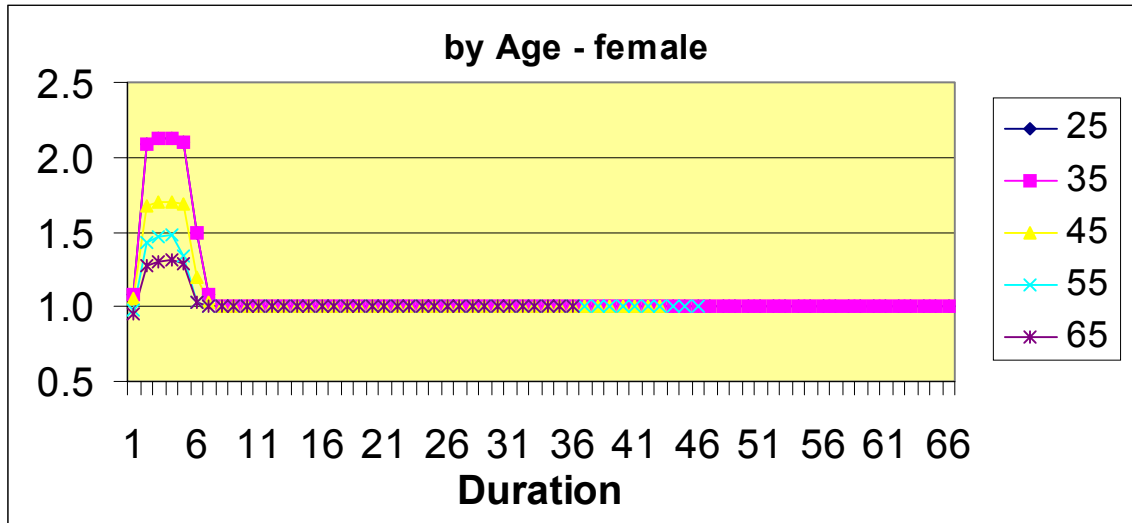


Chart I-5b
Comparison of Statutory Reserves Based on the New Table and
Comparison Reserves for UL with a Level Premium to Produce a Zero
Value at Age 100



The following table shows the reserves for a block of UL on a level premium to zero basis.

Table I-5
Comparison of Statutory Reserves Based on the New Table and
Comparison Reserves for UL with a Level Premium to Produce a Zero
Value at Age 100

	Male	female	both
After 10 years	110.3%	114.7%	111.5%
After 20 years	103.1%	104.2%	103.4%
After 30 years	102.0%	102.6%	102.1%
After 40 years	101.6%	102.1%	101.7%

The UL on a level premium to zero basis comparison reserves are lower than the statutory reserves using the proposed 2001 CSO table. Additional detail on UL with a level premium to zero is shown in tables I-11 and I-12.

The Academy Task Force also considered reserves based on the new table for other forms of UL. In general, as the premium goes up from the level premium to zero, without the addition of any “no lapse” guarantee, the cash value floor will come into play earlier, but statutory reserves should still exceed the comparison reserves prior to that time. As the premium goes down from the level premium to zero, the reserve comparisons will tend toward those for term insurance, reverting to the cash value when the surrender charge wears off. In either case, the statutory reserves will exceed the comparison reserves.

The addition of a “no lapse” guarantee adds a significant complication. The Academy Task Force attempted comparisons of values for a product with a “no lapse” guarantee to age 100, but we were unable to do a reserve computation that considered both lapse and the cash values available on lapse. (This factor can be significant when the cash value floor does not form the basis for the reserve, which is common during the first 20 – 25 durations of this type of policy.) We did make calculations using 8.5 percent interest instead of 4.5 percent to approximate the impact of a 4 percent lapse rate. Under these conditions, the statutory reserves calculated under Regulation XXX were well in excess of the comparison reserves.

Sensitivity Testing

The reserve analysis also considered how experience for individual factors needed to change to produce comparison reserves that are equal to statutory reserves produced by the new table. Table I-6 summarizes the results of this sensitivity testing performed on individual factors. While keeping two of the factors constant at the 85th percentile, the table shows the percentile of the remaining factor that results in the comparison reserve being equal to the statutory reserve. This testing was done using the model office distribution shown in Appendix D to aggregate results. Results are shown for 20 years after first issue.

Table I-6
Maximum Deviations in Experience, with Others at the 85 Percentile
Level that Produces Comparison Reserves Equal to Statutory Reserves

	Mortality		Interest		Lapse	
	<u>Value</u>	<u>Pct'ile</u>	<u>Value</u>	<u>Pct'ile</u>	<u>Value</u>	<u>Pct'ile</u>
Whole Life	110%	69.1%	4.80%	81.4%	3.9%	85.9%
20 Year Term	121%	85.3%	4.10%	87.3%	3.5%	91.5%

As an example, consider whole life. As shown in Table I-4, the ratio of statutory reserves to comparison reserves for whole life is 96.6 percent after 20 years. In order to increase this ratio to 100 percent while holding the interest and lapse assumptions constant (4.50 percent interest and no lapses), the mortality assumption must be reduced from 120 percent of the 2001 VBT (the 85th percentile) to 110 percent of the 2001 VBT (the 69th percentile). Likewise, holding the mortality and lapse assumptions constant (120 percent of the 2001 VBT and no lapses), the interest assumption needs to be increased from 4.50 percent (the 85th percentile) to 4.80 percent (the 81st percentile) in order for the statutory reserves to equal or exceed the comparison reserves. Finally, holding mortality at 120 percent of the 2001 VBT and interest at 4.50 percent requires a lapse rate assumption of 3.9 percent (less than that used for term insurance) for the statutory reserves to be at least as big as the comparison reserves.

For term, the new table produces reserves that can handle small changes beyond the 85th percentile for all three variables.

Conclusion

Based on this analysis, we conclude that the reserves produced by the new table are reasonable in comparison to reserves produced using a methodology similar to the statutory methodology and assumptions that will be sufficient for most companies, most of the time. For 20-year level premium term insurance, the statutory reserves exceeded the comparison reserves by a small margin on a model office basis. While the same cannot be said for whole life, the shortage was small and can easily be covered by a modest improvement in the interest assumption or by including lapses in the calculation. For UL, the statutory reserves produced by the new table were always greater than or equal to the comparison reserves.

**Table I-7
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves**

Plan: Whole Life

Gender: male

Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
1	0.524	0.558	93.9%	0.592	0.581	101.9%	1.298	1.305	99.5%	3.027	3.145	96.3%	8.312	8.974	92.6%
5	23.048	23.527	98.0%	37.555	38.873	96.6%	57.823	60.143	96.1%	89.341	93.299	95.8%	133.451	139.082	96.0%
10	57.565	59.022	97.5%	91.453	94.795	96.5%	139.089	144.824	96.0%	205.249	213.707	96.0%	295.273	306.450	96.4%
15	99.914	102.795	97.2%	153.829	159.448	96.5%	229.182	238.256	96.2%	325.449	337.311	96.5%	453.352	468.424	96.8%
20	150.240	154.912	97.0%	226.621	234.971	96.4%	326.860	338.945	96.4%	450.503	465.154	96.9%	593.418	609.849	97.3%
25	208.482	215.166	96.9%	307.319	318.300	96.6%	428.155	442.308	96.8%	572.665	588.876	97.2%	705.479	721.043	97.8%
30	276.450	285.552	96.8%	394.811	408.101	96.7%	533.541	549.215	97.1%	680.906	696.902	97.7%	784.600	797.306	98.4%
35	351.799	363.211	96.9%	485.543	500.287	97.1%	636.489	652.676	97.5%	767.505	781.837	98.2%	841.911	852.828	98.7%
40	433.493	446.903	97.0%	579.939	595.633	97.4%	727.707	743.012	97.9%	828.650	840.090	98.6%	883.054	898.731	98.3%
45	518.211	532.818	97.3%	672.151	687.906	97.7%	800.686	814.037	98.4%	872.939	882.500	98.9%	919.130	936.318	98.2%
50	606.351	621.678	97.5%	753.856	768.473	98.1%	852.213	862.751	98.8%	904.733	917.562	98.6%	950.124	966.643	98.3%
55	692.453	707.673	97.8%	819.225	831.818	98.5%	889.536	898.216	99.0%	932.613	946.273	98.6%			
60	768.743	782.759	98.2%	865.379	875.264	98.9%	916.330	927.536	98.8%	956.564	969.436	98.7%			
65	829.779	841.795	98.6%	898.810	906.894	99.1%	939.825	951.545	98.8%						
70	872.874	882.285	98.9%	922.810	933.044	98.9%	960.009	970.915	98.9%						
75	904.090	911.763	99.2%	943.855	954.457	98.9%									
80	926.499	936.134	99.0%	961.934	971.732	99.0%									
85	946.147	956.090	99.0%												
90	962.686	972.188	99.0%												

**Table I-8
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves**

Plan: Whole Life

Gender: female Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
1	0.264	0.247	107.1%	0.475	0.446	106.4%	0.916	0.875	104.6%	2.501	2.572	97.2%	5.831	6.166	94.6%
5	20.680	21.173	97.7%	31.932	32.915	97.0%	49.573	51.512	96.2%	72.634	75.361	96.4%	109.990	114.245	96.3%
10	51.062	52.386	97.5%	78.345	80.987	96.7%	117.634	122.149	96.3%	168.217	174.131	96.6%	247.345	256.091	96.6%
15	87.438	89.860	97.3%	132.908	137.575	96.6%	192.945	199.897	96.5%	273.015	282.044	96.8%	388.183	400.543	96.9%
20	131.129	135.038	97.1%	194.863	201.653	96.6%	275.833	285.048	96.8%	384.587	396.348	97.0%	524.189	538.712	97.3%
25	182.493	188.217	97.0%	263.418	272.183	96.8%	366.712	378.079	97.0%	498.987	512.754	97.3%	642.284	656.438	97.8%
30	240.815	248.436	96.9%	338.870	349.428	97.0%	463.465	476.622	97.2%	609.463	624.096	97.7%	746.889	760.032	98.3%
35	305.349	314.719	97.0%	421.595	433.822	97.2%	562.671	576.975	97.5%	705.390	718.964	98.1%	816.743	828.606	98.6%
40	376.376	387.312	97.2%	509.668	523.215	97.4%	658.474	672.963	97.8%	790.359	802.444	98.5%	879.814	895.911	98.2%
45	454.251	466.623	97.3%	599.974	614.251	97.7%	741.660	754.749	98.3%	847.101	857.703	98.8%	924.209	940.565	98.3%
50	537.159	550.633	97.6%	687.182	701.328	98.0%	815.344	826.717	98.6%	898.333	911.941	98.5%	953.099	968.091	98.5%
55	622.170	636.186	97.8%	762.905	775.520	98.4%	864.549	874.356	98.9%	934.394	947.924	98.6%			
60	704.264	718.018	98.1%	829.978	840.806	98.7%	908.977	921.115	98.7%	957.861	970.106	98.7%			
65	775.546	787.742	98.5%	874.769	884.023	99.0%	940.248	952.136	98.8%						
70	838.686	849.097	98.8%	915.211	926.440	98.8%	960.598	971.259	98.9%						
75	880.850	889.711	99.0%	943.677	954.581	98.9%									
80	918.920	929.573	98.9%	962.201	971.929	99.0%									
85	945.715	956.020	98.9%												
90	962.773	972.321	99.0%												

**Table I-9
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves**

Plan: 20 Yr Term

Gender: male

Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
1	0.524	0.569	92.0%	0.592	0.593	99.8%	1.298	1.331	97.5%	3.027	3.208	94.4%	8.312	9.157	90.8%
2	0.801	0.729	110.0%	1.924	1.727	111.4%	4.835	4.439	108.9%	12.510	11.861	105.5%	29.919	28.415	105.3%
3	1.041	0.849	122.6%	3.251	2.887	112.6%	8.274	7.501	110.3%	21.717	20.378	106.6%	51.140	47.579	107.5%
4	1.266	0.961	131.7%	4.557	4.067	112.0%	11.658	10.608	109.9%	30.704	28.928	106.1%	72.048	66.947	107.6%
5	1.511	1.109	136.2%	5.822	5.252	110.8%	15.029	13.824	108.7%	39.490	37.554	105.2%	92.608	86.533	107.0%
6	1.783	1.302	136.9%	7.039	6.436	109.4%	18.345	17.110	107.2%	47.958	46.133	104.0%	112.692	106.236	106.1%
7	2.078	1.538	135.1%	8.185	7.593	107.8%	21.550	20.402	105.6%	55.924	54.465	102.7%	132.063	125.830	105.0%
8	2.392	1.815	131.8%	9.227	8.682	106.3%	24.555	23.611	104.0%	63.159	62.283	101.4%	150.270	144.815	103.8%
9	2.710	2.116	128.0%	10.136	9.667	104.8%	27.271	26.635	102.4%	69.451	69.327	100.2%	166.896	162.720	102.6%
10	3.017	2.425	124.4%	10.868	10.500	103.5%	29.606	29.360	100.8%	74.652	75.411	99.0%	181.787	179.401	101.3%
11	3.307	2.737	120.8%	11.382	11.130	102.3%	31.437	31.629	99.4%	78.638	80.372	97.8%	194.655	194.552	100.1%
12	3.560	3.031	117.4%	11.660	11.531	101.1%	32.671	33.319	98.1%	81.299	84.068	96.7%	205.091	207.723	98.7%
13	3.758	3.289	114.3%	11.688	11.677	100.1%	33.232	34.334	96.8%	82.554	86.377	95.6%	212.496	218.223	97.4%
14	3.884	3.486	111.4%	11.499	11.602	99.1%	33.125	34.665	95.6%	82.243	87.073	94.5%	215.966	224.963	96.0%
15	3.914	3.599	108.7%	11.123	11.341	98.1%	32.335	34.269	94.4%	80.173	85.887	93.3%	214.355	226.519	94.6%
16	3.837	3.614	106.2%	10.509	10.828	97.1%	30.701	32.931	93.2%	76.028	82.378	92.3%	206.374	221.229	93.3%
17	3.630	3.496	103.8%	9.590	9.967	96.2%	27.992	30.335	92.3%	69.344	75.905	91.4%	190.355	206.860	92.0%
18	3.254	3.195	101.9%	8.264	8.631	95.7%	23.918	26.083	91.7%	59.370	65.427	90.7%	164.302	180.604	91.0%
19	2.676	2.662	100.6%	6.427	6.678	96.2%	18.194	19.751	92.1%	45.312	49.792	91.0%	125.762	138.823	90.6%
20	1.503	1.495	100.5%	3.316	3.345	99.1%	8.988	9.458	95.0%	22.516	24.082	93.5%	61.121	66.197	92.3%

Table I-10
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves

Plan: 20 Yr Term

Gender:

female Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
11	0.264	0.252	105.0%	0.475	0.455	104.3%	0.916	0.893	102.5%	2.501	2.624	95.3%	5.831	6.292	92.7%
2	0.665	0.570	116.6%	1.502	1.300	115.5%	3.974	3.650	108.9%	8.871	8.416	105.4%	20.441	19.328	105.8%
3	1.053	0.882	119.4%	2.505	2.135	117.3%	6.971	6.408	108.8%	14.997	14.051	106.7%	34.806	32.347	107.6%
4	1.424	1.190	119.6%	3.482	2.974	117.1%	9.880	9.163	107.8%	20.841	19.548	106.6%	48.880	45.445	107.6%
5	1.780	1.493	119.2%	4.444	3.831	116.0%	12.668	11.882	106.6%	26.378	24.888	106.0%	62.568	58.540	106.9%
6	2.127	1.798	118.3%	5.383	4.701	114.5%	15.295	14.526	105.3%	31.596	30.058	105.1%	75.745	71.512	105.9%
7	2.455	2.097	117.0%	6.290	5.579	112.7%	17.729	17.052	104.0%	36.442	35.002	104.1%	88.235	84.173	104.8%
8	2.751	2.379	115.6%	7.147	6.447	110.9%	19.922	19.407	102.7%	40.857	39.657	103.0%	99.846	96.320	103.7%
9	3.015	2.642	114.1%	7.937	7.285	109.0%	21.824	21.533	101.4%	44.785	43.955	101.9%	110.398	107.757	102.5%
10	3.235	2.870	112.7%	8.641	8.071	107.1%	23.396	23.377	100.1%	48.148	47.813	100.7%	119.678	118.245	101.2%
11	3.388	3.043	111.4%	9.237	8.776	105.3%	24.592	24.885	98.8%	50.850	51.111	99.5%	127.446	127.508	100.0%
12	3.472	3.154	110.1%	9.692	9.367	103.5%	25.345	25.969	97.6%	52.783	53.711	98.3%	133.418	135.211	98.7%
13	3.489	3.199	109.1%	9.966	9.795	101.7%	25.587	26.532	96.4%	53.816	55.446	97.1%	137.257	140.941	97.4%
14	3.434	3.177	108.1%	10.024	10.008	100.2%	25.251	26.483	95.3%	53.792	56.109	95.9%	138.553	144.184	96.1%
15	3.316	3.096	107.1%	9.825	9.955	98.7%	24.293	25.748	94.3%	52.536	55.463	94.7%	136.815	144.308	94.8%
16	3.126	2.944	106.2%	9.321	9.572	97.4%	22.671	24.253	93.5%	49.832	53.206	93.7%	131.449	140.529	93.5%
17	2.851	2.708	105.3%	8.473	8.792	96.4%	20.309	21.877	92.8%	45.393	48.931	92.8%	121.196	131.199	92.4%
18	2.470	2.361	104.6%	7.221	7.531	95.9%	17.117	18.477	92.6%	38.894	42.172	92.2%	104.453	114.135	91.5%
19	1.965	1.875	104.8%	5.504	5.700	96.6%	13.003	13.902	93.5%	29.997	32.413	92.5%	80.002	87.496	91.4%
20	1.072	1.003	106.9%	2.757	2.755	100.1%	6.580	6.787	97.0%	15.325	16.143	94.9%	39.456	42.207	93.5%

Table I-11
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves

Plan: UL – Level Premium to Zero

Gender: male Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
1	0.206	0.199	103.6%	0.206	0.199	103.6%	0.505	0.499	101.3%	1.250	1.254	99.7%	3.322	3.292	100.9%
5	11.856	5.979	198.3%	11.856	5.979	198.3%	20.611	14.152	145.6%	33.337	26.921	123.8%	42.339	37.030	114.3%
10	39.976	39.976	100.0%	39.976	39.976	100.0%	70.957	70.957	100.0%	112.248	112.248	100.0%	132.415	132.415	100.0%
15	76.305	76.305	100.0%	76.305	76.305	100.0%	125.769	125.769	100.0%	186.120	186.120	100.0%	223.225	223.225	100.0%
20	118.275	118.275	100.0%	118.275	118.275	100.0%	184.748	184.748	100.0%	258.142	258.142	100.0%	300.097	300.097	100.0%
25	168.444	168.444	100.0%	168.444	168.444	100.0%	252.606	252.606	100.0%	339.764	339.764	100.0%	358.852	358.852	100.0%
30	228.161	228.161	100.0%	228.161	228.161	100.0%	325.338	325.338	100.0%	424.256	424.256	100.0%	376.449	376.449	100.0%
35	298.042	298.042	100.0%	298.042	298.042	100.0%	411.034	411.034	100.0%	507.441	507.441	100.0%	315.382	315.382	100.0%
40	375.543	375.543	100.0%	375.543	375.543	100.0%	508.166	508.166	100.0%	584.005	584.005	100.0%			
45	470.787	470.787	100.0%	470.787	470.787	100.0%	619.005	619.005	100.0%	629.324	629.324	100.0%			
50	586.914	586.914	100.0%	586.914	586.914	100.0%	742.925	742.925	100.0%						
55	727.459	727.459	100.0%	727.459	727.459	100.0%	909.949	909.949	100.0%						
60	917.133	917.133	100.0%	917.133	917.133	100.0%									
65	1226.177	1226.177	100.0%	1226.177	1226.177	100.0%									

Table I-12
Comparison of Tabular Mean Reserves Using the Proposed 2001 CSO and Comparison Reserves

Plan: UL – Level Premium to Zero

Gender: female

Smoking Status

composite

Table: Ultimate

Duration	Age 25			Age 35			Age 45			Age 55			Age 65		
	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio	Statutory Reserve	Comparison Reserve	Ratio
1	0.159	0.148	107.7%	0.159	0.148	107.7%	0.346	0.327	105.9%	0.975	0.992	98.3%	2.094	2.188	95.7%
5	9.785	4.651	210.4%	9.785	4.651	210.4%	17.083	10.151	168.3%	25.045	18.701	133.9%	32.560	25.322	128.6%
10	32.008	32.008	100.0%	32.008	32.008	100.0%	55.020	55.020	100.0%	87.777	87.777	100.0%	122.546	122.546	100.0%
15	60.287	60.287	100.0%	60.287	60.287	100.0%	97.466	97.466	100.0%	152.526	152.526	100.0%	207.379	207.379	100.0%
20	92.601	92.601	100.0%	92.601	92.601	100.0%	144.527	144.527	100.0%	221.543	221.543	100.0%	280.995	280.995	100.0%
25	132.183	132.183	100.0%	132.183	132.183	100.0%	202.939	202.939	100.0%	298.330	298.330	100.0%	328.284	328.284	100.0%
30	180.038	180.038	100.0%	180.038	180.038	100.0%	271.976	271.976	100.0%	376.257	376.257	100.0%	327.639	327.639	100.0%
35	239.962	239.962	100.0%	239.962	239.962	100.0%	350.633	350.633	100.0%	436.040	436.040	100.0%	213.637	213.637	100.0%
40	311.960	311.960	100.0%	311.960	311.960	100.0%	434.971	434.971	100.0%	469.254	469.254	100.0%			
45	396.463	396.463	100.0%	396.463	396.463	100.0%	513.017	513.017	100.0%	437.607	437.607	100.0%			
50	492.812	492.812	100.0%	492.812	492.812	100.0%	584.090	584.090	100.0%						
55	594.807	594.807	100.0%	594.807	594.807	100.0%	618.577	618.577	100.0%						
60	705.481	705.481	100.0%	705.481	705.481	100.0%									
65	829.061	829.061	100.0%	829.061	829.061	100.0%									

Appendix J-1

Extension of 2001 CSO Tables to Gender-Blended Basis and Age Last Birthday ("ALB") Bases

As was done for the 1980 CSO Tables, gender-blended and ALB tables have been developed from the gender-distinct 2001 CSO Tables. Separate tables were developed for the following proportions of males and females: 100/0; 80/20; 60/40; 50/50; 40/60; 20/80; and 0/100. These percentages were chosen to be consistent with those used for the gender-blended 1980 CSO Tables, per the direction of the NAIC Life and Health Actuarial Task Force. Those tables and documentation of the underlying formulas are shown in Appendices ??? (NOTE: this would be the documentation Jim has already put together).

Relative to the gender-blended tables, the first issue addressed was the method to be used in converting the mortality rates in the ultimate portion of the tables (the "ultimate q 's") to a gender-blended basis. Three methods were considered:

Average approach: Compute the ultimate gender-blended q 's by adding a) the product of the male q and the specified proportion of males to b) the product of the female q and the specified proportion of females.

Issue-age approach: For each issue age and specified male/female split, a) compute the number of surviving lives for males and females separately utilizing the gender-distinct tables, and then b) compute the gender-blended q 's directly from the sum at each duration of the male and female lives assuming the specified male/female split at issue.

Pivot-age approach: Designate an age at which the specified male/female proportions are assumed to occur. Compute the number of surviving lives for males and females separately for all ages (i.e., both prior and subsequent to the pivot age) utilizing the gender-distinct tables, and then compute the gender-blended q 's directly from the sum at each age of the male and female lives.

While the "issue-age" approach is the theoretically correct answer, it was rejected because it is administratively cumbersome to require a unique set of q 's for every issue age and the added precision does not justify the additional burden. The "average" approach was also rejected because the q 's which result from this method does not produce reasonable approximations to the "issue-age" approach. The "pivot-age" approach, with a pivot age of 45, was selected because: a) this is the approach which was used in created the 1980 CSO gender-blended tables (described in the NAIC Proceedings – 1984 Vol. 1); and b) it produces reasonable approximations to the theoretically correct answers for most issue ages.

Appendix J-1

Next, the gender-blended select q 's were developed. In essence, the same approach was utilized that had been applied in developing the select factors for the 1980 CSO gender-blended tables (page 457 of the NAIC Proceedings – 1984 Vol. 1). Two modifications were made. First, the actual ratios of ultimate female mortality to ultimate male mortality at each attained age was used in lieu of the fixed 60 percent ratio incorporated into the 1980 CSO calculation. (Note: See Appendix J-2, Item 5). Second, the actual male/female split based on the derivation of the ultimate q 's was used in lieu of the specified male/female split.

Relative to the ALB tables, the approach utilized in creating the 1980 ALB CSO Table was followed (pages 671-672 of Volume XXXIII of the Transactions of the Society of Actuaries (1981)). During the select period, the "lx's" utilized were those derived from adjacent issue ages.

Appendix J-2

2001 CSO Building ALB & Gender Blended Tables

1. Naming Convention. The following method is used to identify the 84 specific tables within this memo.

- a. Template. 2001 CSO (Sex) Smoking Type Basis.
- b. Sex.
 - i. M. Male.
 - ii. F. Female.
 - iii. 80. 80 percent male, 20 percent female.
 - iv. 60. 60 percent male, 40 percent female.
 - v. 50. 50 percent male, 50 percent female.
 - vi. 40. 40 percent male, 60 percent female.
 - vii. 20. 20 percent male, 80 percent female.
- c. Smoking.
 - i. Composite. Not smoker distinct.
 - ii. Non-smoker.
 - iii. Smoker.
- d. Type.
 - i. S&U. Select & ultimate.
 - ii. U. Ultimate.
- e. Basis.
 - i. ANB. Age near birthday.
 - ii. ALB. Age last birthday.
- f. Example. 2001 CSO (80) Composite U ALB is the gender blended table based on 80 percent males, 20 percent females. This table is just the ultimate portion of the table and is age last birthday.
- g. Groups of tables. When an item is not identified, all versions of that item are included. For example, 2001 CSO (M) S&U would include all of the select & ultimate tables for males, including composite, non-smoker, smoker, age near birthday, and age last birthday.

2. Provided tables.

- a. 2001 CSO (M) Composite S&U ANB.
- b. 2001 CSO (M) Non-Smoker S&U ANB.
- c. 2001 CSO (M) Smoker S&U ANB.
- d. 2001 CSO (F) Composite S&U ANB.
- e. 2001 CSO (F) Non-Smoker S&U ANB.
- f. 2001 CSO (F) Smoker S&U ANB.

3. **2001 CSO (M or F) U ANB.** Ultimate versions of the provided tables are taken directly from the ultimate column of these tables. For attained ages less than age 25 the values from issue age 0 are used. This determines these tables.
- 2001 CSO (M) Composite U ANB.
 - 2001 CSO (M) Non-Smoker U ANB.
 - 2001 CSO (M) Smoker U ANB.
 - 2001 CSO (F) Composite U ANB.
 - 2001 CSO (F) Non-Smoker U ANB.
 - 2001 CSO (F) Smoker U ANB.

4. **2001 CSO (X) U ANB.** Gender blended versions of the ultimate tables are developed using the methodology that was used for the 1980 CSO gender blended tables. The following are the steps used to do these calculations.

{Comment: Using theoretical values based on the actual issue age was considered. This was rejected due to the complexity of the resulting tables. Using a simple blend of mortality rates was also considered. This approach was rejected since it did not reasonably reproduce values for selected theoretical issue ages. Values were also calculated using a pivot age of 55. There was only marginal difference in values from using a pivot age of 45. Thus the pivot age approach was selected using a pivot age of 45 to be consistent with the development of the 1980 CSO gender blended tables.}

- Develop l'_x 's. Male and female l'_x 's are developed using the values from 2001 CSO (M or F) U ANB, based on $l_{120} = 200$ lives. These values are rounded to the near life.
- Develop adjustment factor. The following ratio is calculated for the male table: $f^M = \frac{(l_{45}^M + l_{45}^F) \times r}{l_{45}^M}$, where r is the percentage of males. The

following ratio is calculated for the female table: $f^F = \frac{(l_{45}^M + l_{45}^F) \times (1-r)}{l_{45}^F}$.

These ratios are not rounded.

- Develop adjusted l'_x 's. Male and female l'_x 's are calculated by multiplying the appropriate ratios times the l'_x 's from a. These are rounded to the near life.
- Develop gender blended \bar{l}'_x 's. Male and female adjusted l'_x 's from c. are added together to create the gender blended \bar{l}'_x 's.
- Calculate q'_x 's. The mortality rates per 1,000 lives are calculated using the \bar{l}'_x 's from d. These mortality rates are rounded near to 2 places. The non-smoker rates were adjusted to be not greater than the comparable values from the composite tables. The smoker rates were adjusted to be not less than the comparable values from the composite tables.

- f. Tables. This step calculates the following tables.
- i. 2001 CSO (80) Composite U ANB.
 - ii. 2001 CSO (80) Non-Smoker U ANB.
 - iii. 2001 CSO (80) Smoker U ANB.
 - iv. 2001 CSO (60) Composite U ANB.
 - v. 2001 CSO (60) Non-Smoker U ANB.
 - vi. 2001 CSO (60) Smoker U ANB.
 - vii. 2001 CSO (50) Composite U ANB.
 - viii. 2001 CSO (50) Non-Smoker U ANB.
 - ix. 2001 CSO (50) Smoker U ANB.
 - x. 2001 CSO (40) Composite U ANB.
 - xi. 2001 CSO (40) Non-Smoker U ANB.
 - xii. 2001 CSO (40) Smoker U ANB.
 - xiii. 2001 CSO (20) Composite U ANB.
 - xiv. 2001 CSO (20) Non-Smoker U ANB.
 - xv. 2001 CSO (20) Smoker U ANB.

5. **2001 CSO (X) S&U ANB.** Values for the ultimate portion of these tables are taken from 2001 CSO (X) U ANB calculated in 4. This also determines all the values for issue age 0. Values for the select portion of these tables are calculated by weighting the effective selection factor from the male and female

tables using the following formula
$$q_{[x]+t}^r = q_{x+t}^r \times \frac{\left\{ \left[\frac{q_{[x]+t}^M}{q_{x+t}^M} \times s \right] + \left[\frac{q_{[x]+t}^F}{q_{x+t}^F} \times (1-s) \times \frac{q_{x+t}^F}{q_{x+t}^M} \right] \right\}}{s + \left[\frac{q_{x+t}^F}{q_{x+t}^M} \times (1-s) \right]}.$$

In this formula, s is the percentage of males for the attained age, based on the calculations in 4 $\left(s = \frac{l_{x+t}^M}{l_{x+t}^T} \right)$. These rates are rounded near to 2 places. This step calculates the following tables.

{Comment: This uses the methodology proposed by Robert J. Johansen for developing the select factors for the 1980 CSO blended tables. It can be found in the NAIC Proceedings – 1984 Volume I, page 457. The ratio s is used rather than the fixed pivot percentage described in the Johansen memorandum. Also, the actual ratio of female to male mortality is used rather than an assumed 60 percent ratio.}

- a. 2001 CSO (80) Composite S&U ANB.
- b. 2001 CSO (80) Non-Smoker S&U ANB.
- c. 2001 CSO (80) Smoker S&U ANB.
- d. 2001 CSO (60) Composite S&U ANB.
- e. 2001 CSO (60) Non-Smoker S&U ANB.

- f. 2001 CSO (60) Smoker S&U ANB.
- g. 2001 CSO (50) Composite S&U ANB.
- h. 2001 CSO (50) Non-Smoker S&U ANB.
- i. 2001 CSO (50) Smoker S&U ANB.
- j. 2001 CSO (40) Composite S&U ANB.
- k. 2001 CSO (40) Non-Smoker S&U ANB.
- l. 2001 CSO (40) Smoker S&U ANB.
- m. 2001 CSO (20) Composite S&U ANB.
- n. 2001 CSO (20) Non-Smoker S&U ANB.
- o. 2001 CSO (20) Smoker S&U ANB.

6. 2001 CSO S&U ALB. Values for these tables are calculated according to the following formulas. Values for these mortality rates per 1,000 lives are rounded near to 2 places. Except for issue age 99, values are developed from age near birthday rates that are in the same duration. For issue age 99, values are developed from different durations.

{Comment: Values were calculated using two approaches. The first is as described here. The second approach developed gender blended ALB U values first, then S&U values from these U values. There was not a material difference in values, so it was decided to use the easier approach described here.}

a. Issue age 99.
$$q_{[99]+t}^{ALB} = \left\{ \frac{q_{[99]+t}^{ANB} + [(1 - q_{[99]+t}^{ANB}) \times q_{[99]+t+1}^{ANB}]}{2 - q_{[99]+t}^{ANB}} \right\}.$$

b. Other issue ages and ultimate rates.
$$q_{[x]+t}^{ALB} = \left\{ \frac{q_{[x]+t}^{ANB} + [(1 - q_{[x]+t}^{ANB}) \times q_{[x]+t+1}^{ANB}]}{2 - q_{[x]+t}^{ANB}} \right\}.$$

c. The following tables are developed from this step.

- i. 2001 CSO (M) Composite S&U ALB.
- ii. 2001 CSO (M) Non-Smoker S&U ALB.
- iii. 2001 CSO (M) Smoker S&U ALB.
- iv. 2001 CSO (F) Composite S&U ALB.
- v. 2001 CSO (F) Non-Smoker S&U ALB.
- vi. 2001 CSO (F) Smoker S&U ALB.
- vii. 2001 CSO (80) Composite S&U ALB.
- viii. 2001 CSO (80) Non-Smoker S&U ALB.
- ix. 2001 CSO (80) Smoker S&U ALB.
- x. 2001 CSO (60) Composite S&U ALB.
- xi. 2001 CSO (60) Non-Smoker S&U ALB.
- xii. 2001 CSO (60) Smoker S&U ALB.
- xiii. 2001 CSO (50) Composite S&U ALB.
- xiv. 2001 CSO (50) Non-Smoker S&U ALB.
- xv. 2001 CSO (50) Smoker S&U ALB.
- xvi. 2001 CSO (40) Composite S&U ALB.

- xvii. 2001 CSO (40) Non-Smoker S&U ALB.
- xviii. 2001 CSO (40) Smoker S&U ALB.
- xix. 2001 CSO (20) Composite S&U ALB.
- xx. 2001 CSO (20) Non-Smoker S&U ALB.
- xxi. 2001 CSO (20) Smoker S&U ALB.

7. 2001 CSO (X) U ALB. Ultimate versions of the age last birthday tables are taken directly from the ultimate column of these tables. For attained ages less than age 25 the values from issue age 0 are used. This determines these tables.

- a. 2001 CSO (M) Composite U ALB.
- b. 2001 CSO (M) Non-Smoker U ALB.
- c. 2001 CSO (M) Smoker U ALB.
- d. 2001 CSO (F) Composite U ALB.
- e. 2001 CSO (F) Non-Smoker U ALB.
- f. 2001 CSO (F) Smoker U ALB.
- g. 2001 CSO (80) Composite U ALB.
- h. 2001 CSO (80) Non-Smoker U ALB.
- i. 2001 CSO (80) Smoker U ALB.
- j. 2001 CSO (60) Composite U ALB.
- k. 2001 CSO (60) Non-Smoker U ALB.
- l. 2001 CSO (60) Smoker U ALB.
- m. 2001 CSO (50) Composite U ALB.
- n. 2001 CSO (50) Non-Smoker U ALB.
- o. 2001 CSO (50) Smoker U ALB.
- p. 2001 CSO (40) Composite U ALB.
- q. 2001 CSO (40) Non-Smoker U ALB.
- r. 2001 CSO (40) Smoker U ALB.
- s. 2001 CSO (20) Composite U ALB.
- t. 2001 CSO (20) Non-Smoker U ALB.
- u. 2001 CSO (20) Smoker U ALB.

(M&F) Composite U ALB

Appendix J-3

Attained Age	(M)	(F)
0	0.72	0.42
1	0.46	0.31
2	0.33	0.23
3	0.24	0.20
4	0.21	0.19
5	0.21	0.18
6	0.22	0.19
7	0.22	0.21
8	0.22	0.21
9	0.23	0.21
10	0.24	0.22
11	0.28	0.25
12	0.34	0.27
13	0.40	0.31
14	0.52	0.34
15	0.66	0.36
16	0.78	0.39
17	0.89	0.41
18	0.95	0.44
19	0.98	0.46
20	1.00	0.47
21	1.01	0.49
22	1.02	0.50
23	1.04	0.51
24	1.06	0.53
25	1.09	0.55
26	1.14	0.58
27	1.17	0.61
28	1.16	0.64
29	1.15	0.67
30	1.14	0.70
31	1.13	0.75
32	1.14	0.79
33	1.16	0.85
34	1.19	0.92
35	1.24	1.00
36	1.31	1.07
37	1.39	1.14
38	1.49	1.20
39	1.59	1.26

40	1.72	1.34
41	1.87	1.43
42	2.05	1.53
43	2.27	1.65
44	2.52	1.79
45	2.77	1.96
46	3.03	2.16
47	3.25	2.38
48	3.42	2.64
49	3.64	2.93
50	3.91	3.24
51	4.26	3.60
52	4.70	3.99
53	5.21	4.41
54	5.83	4.86
55	6.52	5.36
56	7.26	5.91
57	7.95	6.49
58	8.63	7.09
59	9.42	7.70
60	10.40	8.34
61	11.59	9.03
62	12.98	9.76
63	14.47	10.55
64	16.04	11.40
65	17.65	12.33
66	19.27	13.35
67	20.96	14.48
68	22.74	15.71
69	24.69	17.08
70	26.94	18.63
71	29.71	20.38
72	32.94	22.29
73	36.32	24.39
74	39.96	26.68
75	43.95	29.20
76	48.44	31.95
77	53.67	34.97
78	59.72	38.28
79	66.48	41.92
80	74.02	46.43
81	82.20	51.96
82	90.82	57.80

83	100.22	63.94
84	110.69	70.74
85	122.36	77.59
86	135.17	85.68
87	148.99	95.69
88	163.66	106.25
89	179.03	116.68
90	194.28	124.22
91	209.27	131.53
92	224.94	143.72
93	241.46	160.21
94	258.86	180.90
95	276.12	203.48
96	292.95	225.69
97	310.86	240.07
98	329.95	247.79
99	350.32	263.98
100	369.76	285.02
101	386.96	307.89
102	405.25	333.06
103	424.70	360.71
104	445.35	390.86
105	467.29	422.72
106	490.57	455.33
107	515.28	488.48
108	541.49	522.20
109	569.27	557.04
110	598.70	591.96
111	629.88	625.62
112	662.87	657.77
113	697.78	690.79
114	734.68	732.06
115	773.66	771.35
116	814.78	812.36
117	858.15	855.90
118	903.81	896.58
119	951.67	939.06
120	1,000.00	1,000.00

SOCIETY OF ACTUARIES DRAFT REPORT OF THE INDIVIDUAL LIFE INSURANCE VALUATION MORTALITY TASK FORCE, SEPTEMBER 2001

NEW VALUATION BASIC MORTALITY TABLE

In a letter to the Society of Actuaries ("SOA") in November 1998, the SOA was asked by the NAIC to begin work on the development of new valuation mortality tables for life insurance and accidental death benefits. Through meetings, and discussions with the NAIC and the American Academy of Actuaries ("AAA"), it was agreed that the SOA would create a valuation basic mortality table ("Valuation Basic Tables") to be used by the AAA in the development of a new valuation mortality table.

In order to meet its mandate, the Society of Actuaries ("SOA") Individual Life Insurance Valuation Mortality Research Task Force ("Task Force") was formed by the SOA in July 1999 to create the Valuation Basic Tables. A separate task force has been created by the AAA specifically to take the Valuation Basic Tables created by the Task Force and create a new valuation mortality table.

The following report describes the methodology used to develop the Valuation Basic Tables and its distribution has been agreed to by the SOA's Board of Governors.

I. BACKGROUND

The 1980 Commissioners' Standard Ordinary ("1980 CSO") mortality table is the commonly used mortality table for the valuation of standard ordinary life insurance in the United States. It was developed by a Committee of the SOA based on experience from the period 1970-75 and adopted by the NAIC in December 1980 (TSA XXXIII pp. 617-674).

Subsequent to the adoption of the 1980 CSO Tables a SOA Task Force effected a split of the 1980 CSO Tables into Smoker and Nonsmoker Tables using insurance and non-insurance data (TSA, 1982 Reports pp. 343-390).

The Task Force has created the Valuation Basic Tables as a first step toward development of a new valuation mortality table to replace the 1980 CSO mortality table. In constructing the Valuation Basic Tables, the following basic premises were set by the Task Force:

- The Task Force would utilize the SOA 1990-95 experience study as the primary source of experience.
- The Task Force would develop separate Valuation Basic Tables for, at a minimum, males and females, and smokers and non-smokers.

- The Task Force would look to supplement the SOA experience with experience from other sources where the SOA experience was limited or not available. Mortality experience above issue age 75 and attained age 90 were specifically noted as areas where the SOA should look to supplement the experience.
- The Task Force would consider such issues as preferred risk underwriting, the impact of AIDS and mortality improvement in the construction of the Valuation Basic Tables.

The following report describes the key steps used to construct the Valuation Basic Tables. These include the following:

- Construction of male/female mortality tables
- Construction of smoker distinct mortality tables for both males and females
- Consideration for mortality improvement
- Consideration for preferred risks
- Consideration for AIDS

A discussion of the key observations that the Task Force has regarding the Valuation Basic Tables is included in the body of the report. The Valuation Basic Table and related comparisons can be found in the Appendices attached to this report.

The Task Force gives special thanks to Jack Bragg and Associates, the Railroad Retirement Fund and the Veterans' Administration for their cooperation in providing the SOA with supplemental experience data that has been utilized in the development of the Valuation Basic Tables. It should be noted that this experience data has been provided to the SOA solely for the use of this Task Force and cannot be distributed by the SOA.

II. CONSTRUCTION OF MALE AND FEMALE BASIC MORTALITY TABLES

II.A. BACKGROUND

In April 2000, the SOA Individual Life Insurance Experience Committee released the 1990-95 Basic Mortality Tables. Specifically, male composite (smoker, non-smoker and smoking status unknown experience combined) and female composite tables in age nearest birthday and age last birthday formats were released. The 1990-95 Basic Mortality Tables fulfilled the ongoing work of the Individual Life Insurance Experience Committee's charge of reporting on insured lives mortality experience over successive five-year periods. The raw insured life data was graduated with an extrapolation for issue ages over 72. The 1990-95 Basic Mortality Tables were designed primarily as experience tables, and as such, had a good fit to the

underlying experience data. No effort was made by the Individual Life Insurance Experience Committee to adjust the table for large claims or other features inherent in the experience data.

The 1990-95 experience tables include experience from individually underwritten life insurance policies for the period 1990-1995. The experience studies specifications call for all standard, fully underwritten policies to be included in the studies. Policies with limited underwriting or no underwriting, such as simplified issue, guaranteed issue, ETI, and reduced paid up are excluded from the studies. Also excluded from the studies are substandard policies. Preferred policies are included in the studies as are term conversions (however, term conversions are tracked from the original issue date).

In developing new Valuation Basic Tables utilizing the 1990-95 Basic Mortality Tables, the actuarial issues relevant to the creation of male and female tables for the Task Force included:

- Separate male and female mortality: The SOA has been reporting experience separately for males and females for many years. Consistent with this practice, separate male and female mortality tables have been created as part of the 1990-95 Basic Mortality Tables. A sample of male and female mortality for selected issue ages and durations is presented below:

1990-95 BASIC MORTALITY TABLE (ANB)				
<i>Age</i>	Duration 1		Ultimate	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
25	0.39	0.16	0.95	0.41
35	0.35	0.21	1.86	0.83
45	0.68	0.45	2.42	1.45
55	1.54	1.19	5.87	4.37
65	3.16	2.01	16.65	10.74

Based on current experience, the Task Force believes it prudent to also create separate Valuation Basic Tables for males and females. This is also consistent with the 1980 CSO Tables and current industry practice of having separate premium scales for males and females.

- Select period: The 1990-95 Basic Mortality Tables were created using a 25-year select period format. However, at younger and older issue ages, the actual select period is less. The select period is consistent with the SOA 1985-90 Basic Mortality Tables and reflects insured lives experience from the study period. It should be noted that the majority of the experience underlying the

1990-95 tables was submitted on a 15-year select basis. However, the experience submitted on a 25-year select basis supported the development of a 25-year select period. In fact, at certain ages the underlying experience may suggest an even longer select period. The 25-year select period reflects the long-term impact of selection on mortality rates. The Task Force has utilized a 25-year select period format in the creation of the Valuation Basic Tables, as the Task Force believes a 25-year select period is the best representation of current experience. It should be noted that the 1980 CSO mortality tables were created with no select period, and subsequently 10-year select factors (and 20-year select factors with the adoption of Regulation XXX) were developed.

- Age nearest birthday/age last birthday: The Task Force has created age nearest birthday (“ANB”) versions of the Valuation Basic Tables. It is anticipated that the AAA will utilize the ANB Valuation Basic Tables to create a new valuation mortality table and then use this table to create an ALB valuation mortality table.
- Smoothness: The 1990-95 Basic Mortality Tables emphasized fit of the underlying data. However, the Task Force believes that a valuation mortality table should emphasize smoothness over fit. If a valuation mortality table is not smooth, there is a risk that on an age-by-age or duration-by-duration basis, the table could produce inconsistent values.

The Task Force has utilized certain graduation techniques to ensure smoothness of the Valuation Basic Table. Also, after application of the graduation techniques, the Task Force utilized certain tests that were designed to ensure that the Valuation Basic Tables met certain goals as described below:

1. Duration within issue age row test: With a few possible exceptions where the experience clearly justifies, such as mortality at very young ages (less than 5), mortality for any given issue age should increase with duration since issue. That is,

$$q_{[x]} \leq q_{[x]+1} \leq q_{[x]+2} \leq \dots$$

2. Issue age within column test: With a few possible exceptions where the experience clearly justifies, such as mortality at very young ages (less than 5), mortality for any given duration since issue should increase with issue age. That is,

$$q_{[x]+t} \leq q_{[x+1]+t} \leq q_{[x+2]+t} \leq \dots$$

3. Attained age test: Mortality for any given attained age should increase with duration since issue. That is,

$$q_{[x]} \leq q_{[x-1]+1} \leq q_{[x-2]+2} \leq \dots$$

- Older and younger issue age mortality: The 1990-95 SOA had no experience data above central issue age 72, limited data for attained ages over 85 and limited data for juveniles for use in the creation of the 1990-95 Basic Mortality Tables. The Task Force has utilized data from other sources (Jack Bragg and

Associates and the Veterans' Administration) to supplement its experience data at these ages. A description of how the extra data has been utilized is included herein.

- AIDS claims: For males at issue ages in the 20's and 30's, there is a mortality spike at older durations. It is the Task Force's belief that this spike is a result of both identifiable and non-identifiable AIDS claims. As the 1990-95 Basic Mortality Tables were created based on experience from 1990-95, the impact of AIDS in the 1990-95 Basic Mortality Tables is overstated as compared to the impact of AIDS today. Current mortality due to AIDS is less than that experienced in 1990-95 as a result of the advancement in the treatment of AIDS and the implementation of AIDS testing. The Task Force considered explicitly removing identifiable AIDS claims from the 1990-95 Basic Mortality Tables prior to smoothing the tables. However, an examination of identifiable AIDS claims in the 1990-95 experience table, and current trends in AIDS mortality indicated that the adjustment would be at most 5% at certain issue age/durations and would be less than 1% at most issue age/durations. In comparison, an examination of the smoothness adjustments required for the 1990-95 Basic Mortality Tables showed that these adjustments are more substantive and therefore no explicit adjustment for AIDS was made by the Task Force.

II.B. OVERVIEW OF THE DEVELOPMENT OF COMPOSITE MALE AND FEMALE MORTALITY TABLES

The approach used to develop the composite Valuation Basic Tables for males and females is as follows:

1. We have used the 1990-95 Basic Mortality Tables as a starting point. However, as noted above, there was little older age experience data available for use in the creation of the 1990-95 experience tables. Graduation techniques were used by the SOA Individual Life Insurance Committee to create the 1990-95 Basic Mortality Tables where data was limited. To supplement the 1990-95 Basic Mortality Tables at older ultimate ages, male insured data from the Veterans Administration WWII table was obtained. Older female ultimate age data from the 1995 Railroad Retirement Board Table for Widows (from the 20th Actuarial Valuation of the U.S. Railroad Retirement Board Table S-7) was considered, but was considered and incorporated into the initial draft of the table; however, on further review of the data, the Task Force believed it too different from insured data to utilize in the construction of the table. Older issue age select data was obtained from a special Old Age Mortality study that was commissioned for this committee and performed by Bragg and Associates.
2. An initial graduation, utilizing a 2- dimensional Whittaker-Henderson Type B method, was performed to address smoothness concerns of the Task Force. The initial q_{xs} utilized in the graduation were the 1990-95 experience tables and the VA and Bragg data where appropriate. The Task Force believed it appropriate to begin with the 1990-95 experience tables in the graduation,

instead of the raw q_x s, as the 1990-95 experience tables had a good fit to the underlying data.

3. Based on the results of the initial graduation, specific corrections for smoothness and older age mortality were made. Also, for males only, corrections were made at later durations for issue ages 20 through 30.
4. We performed duration within issue age row test, the issue age within duration column test and the attained age test on the graduated tables. The tests failed at certain age duration values, and as such, the Task Force used ultimate mortality to change younger issue age mortality and set a maximum of ultimate mortality at any attained age. The resulting tables are the preliminary composite Valuation Basic Tables by male and female.
5. We multiplied the preliminary composite Valuation Basic Tables by mortality improvement projection factors and smoothed results to produce the composite Valuation Basic Tables for males and females.

II.C. DETAILS OF DEVELOPMENT OF COMPOSITE MALE AND FEMALE MORTALITY

1. Address the older ages by using a combination of data

The basis of the Valuation Basic Table is the 1990-95 Basic Mortality Tables. The Task Force had concerns over the lack of experience data used for older ages in the construction of the 1990-95 Basic Mortality Tables. To address these concerns, the Task Force made modifications to the 1990-95 Basic Mortality Tables using the deaths and exposures from other sources to replace certain 1990-95 Basic Mortality Table values.

To address the problem of lack of data at older issue ages in the 1990-95 Basic Mortality Tables, a special study was prepared for this Task Force by Bragg and Associates entitled "Report on Older Age Mortality". The Male Study had a total of \$132.4 billion exposure with \$1.4 billion of claims at attained ages 65 and up (experience for both select and ultimate durations) and the Female Study had total of \$46.1 billion of exposures and \$0.4 billion of claims at attained ages 45 and up. Results were provided for all lives split by non-smoker, smoker and smoking status unknown.

The source of male high age ultimate mortality was the graduated VA 93 Permanent plan mortality experience. In particular, the program used was the National Service Life Insurance ("NSLI") program that covered millions of servicemen from WWII. At that time, virtually all servicemen took out this insurance. At the end of 1993, 2,380,832 policies remained in force for a total amount of \$20.6 billion of insurance and an average attained age of 70.0 years. The issue age data on the policies is extremely accurate. In 1993, there were 1,743,806 Permanent policies in force as compared to 637,026 5-Year term policies in force. As has been the case in NSLI studies, permanent mortality is distinctly lower than term mortality. To

ensure consistency with the 1990-95 Basic Mortality Table study period, the graduated VA 93 Permanent plan mortality experience (covering the period 1990-92) was selected. These graduated rates cover attained ages 58 through 95, and were extended to a value of 1 at age 120.

2. Address smoothness by using a 2- dimensional Whittaker-Henderson Type B method for an initial graduation.

A 2-dimensional Whittaker-Henderson method was used to graduate the tables, with third differences, a vertical smoothness component of .8 and a horizontal smoothness component of .06. The initial q_x s used in the graduation were the 1990-95 experience tables, and, where appropriate, the Bragg and VA experience. The graduation weights the experience based on the exposures.

The data used in the graduation were the 1990-95 Basic Mortality Table, the combined results from the Bragg and Associates "Report on Older Age Mortality" and the graduated VA 93 Permanent plan mortality experience for males.

3. Based on the initial graduation, correct for smoothness and older age mortality. For males only, corrections were made at later durations for issue ages 20 through 30.

In the initial graduation, smoothness was needed for younger ages. An adjustment for younger ages was made at issue ages zero, one and two within the first 3 durations. These were graduated with reference to the 1990-95 basic tables. Additionally, mortality rates were changed by from 0.00001 to .00005 for smoothness.

The initial graduation resulted in an ultimate q_x pattern at older ages that did not meet the tests set out in II.A and, therefore, substitutions were made. For males, the VA 93 Permanent plan q_x s were substituted.

Later durations of issue ages 20 through 30 spiked above 100% of the 1975-80 Basic Mortality Table. The Task Force believes these high values at the later durations were attributable to excess AIDS deaths. We believe these results overstate the impact of AIDS today given the advancement in the treatment of AIDS and the implementation of AIDS testing.

At other nearby durations, the ratios to the 1975-80 Basic Mortality Tables were around 85%, the Task Force believed this to be a reasonable upper bound for mortality at those ages. As an initial step to address the AIDS spike, we set, for issue age 0/duration 1 and issue ages 2-30/all durations, $q_x = \min(\text{Graduation } q_x, 85\% \text{ of } 1975\text{-}80 \text{ Basic Mortality Table } q_x)$. This initial step also eliminated an attained age 16 mortality ridge in the male data. This attained age 16 mortality ridge is present in the female data and other material available to the committee. It is believed that this attained age 16 ridge is due to new drivers at attained age 16.

The attained age 16 mortality ridge was restored for males. The AIDS spike was then modified from a flat plateau of 85% to a slightly higher peak that reflected the shape of full AIDS mortality.

4. Perform duration within issue age row test; issue age within duration column test and attained age test. Based on results, use ultimate mortality to change younger issue age mortality and set a maximum of ultimate mortality at any attained age. The resulting tables are the preliminary composite Valuation Basic Tables for males and females.

For both male and females, the tests were not enforced for:

1. Ages near birth
2. Attained age 16 mortality ridge.

For males, the tests were not enforced for:

1. AIDS mortality spike at later durations of issue ages 20 through 30.
2. The decline in male mortality during their 20's.

It was observed that the younger age mortality was extremely low compared to the 1975-80 Basic Mortality Table and resulted in issues with smoothness. Results were modified to raise mortality and provide smoothness similar to that in the 1975-80 Basic Mortality Tables.

Modifications were also made to mortality at durations 11 through 25, at ages greater than 40 for males and females, to address smoothing concerns revealed in preliminary testing of the 2001 CSO valuation mortality table.

Numerous changes of small magnitude, from .00001 to .00005, were made to bring the rates into compliance with the smoothness tests. These minor changes typically took place at younger ages.

For females and males issue age 20 and over, modifications were made primarily by log linear interpolation. Most of the log linear interpolations occurred along attained age diagonals.

The result of this step was the preliminary composite Valuation Basic Table for males and females.

5. Multiply the preliminary composite Valuation Basic Tables by mortality projection factors, and smooth results to produce the composite Valuation Basic Tables for males and females.

The preliminary composite Valuation Basic Tables for males and females were projected from 1992 to 2001 using mortality projection assumptions described in Section IV. The resulting product was not uniformly smooth based on the rules described in II.A. If the result was not smooth due to a corresponding lack of smoothness in the preliminary composite table, no change was made. Otherwise, the resulting product was smoothed by:

1. Numerous changes of magnitude .00001 to .00005
2. Log-linear interpolations
3. At older issue ages, setting values equal to ultimate values along attained age diagonals.

The resulting tables are the composite Valuation Basic Tables for males and females.

III. CONSTRUCTION OF SMOKER DISTINCT MORTALITY

The Task Force was charged with developing Valuation Basic Tables that provided separate tables for smokers and non-smokers. This is consistent with the 1980 CSO Mortality Tables that have smoker distinct versions. In developing smoker/nonsmoker distinct tables, the Task Force has explored both insured and non-insured lives experience data and split mortality experience by smoking basis.

There are many challenges in developing smoker distinct mortality. First, the long-term relationship of insured lives mortality rates by smoking status is unknown. Separate smoking distinct classes have not been utilized in insurance products long enough to produce ultimate duration smoker distinct mortality. Second, the definition of smoking status has changed over time. For example, smoking status was initially defined as cigarette smoking. More recently, the use of cigars, pipes or smokeless tobacco products constitute "tobacco" usage for insurance purposes.

The largest obstacle to overcome is isolating the effect of smoking status by itself. Smoking is heavily correlated with socio-economic status. In general, smokers are more prevalent in lower socio-economic classes and buy smaller policies. These smaller policies are screened with relatively fewer underwriting requirements.

These complications mean that we must look to include as much information as possible and be very careful to avoid attributing mortality differences to smoking status when other contributing factors may be present as well.

Section III.A contains relevant insured lives data including commentary of the work found in the 1982 Society of Actuaries Reports entitled "Report of the Task Force on Smoker/Nonsmoker Mortality". Section III.B contains relevant population trends and commentary on such. Section III.C contains final recommendations for nonsmoker/smoker splits of underlying data.

III.A INSURED LIVES DATA

The compilation of the 1990-95 Basic Mortality Tables was the first time that nonsmoker/smoker experience was evaluated in the construction of SOA Basic Mortality Tables. The data that was compiled contains many of the biases alluded to above. While smoking status was segmented, it simply was not possible to isolate all other factors so that smoking was the only variable contributing to differentials in the relative risk of mortality. The primary variable not held constant

in the study was policy size. Assuming smokers buy smaller policies, the spread observed in the experience is wider than it might otherwise be if all other factors were held constant.

In addition, it is likely the underlying lapse rates for nonsmokers and smokers changed during this period of time due to the introduction and proliferation of preferred products that were primarily focused on non-tobacco/nonsmoker risks. It would not be unreasonable to expect that healthier nonsmoker risks migrated out of the nonsmoker pool faster than what might have occurred from the smoker population. As such, the nonsmoker mortality results may be worse than would have occurred if the population had stayed relatively unchanged through the entire exposure period. However, if much of the nonsmoker experience reflects the preferred nonsmoker or non-tobacco classes, then the differential observed by smoking habits is likely to be exaggerated.

With those caveats, however, it is still valuable to look at the graduated experience of the contributing companies. The following show the ratios of nonsmoker/smoker to composite experience, and the resulting smoker/nonsmoker ratio, and compares to the assumption used to develop the 1980 CSO tables.

**AGE 25 MALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.86	0.90	0.89	0.83
Basic '90-95 SM	1.69	1.92	1.72	1.72
Ratio '90-95	1.97	2.13	1.93	2.07
Ratio 80 CSO Basic	1.41	1.41	1.43	1.54

**AGE 35 MALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.89	0.87	0.86	0.84
Basic '90-95 SM	1.94	2.03	2.00	1.93
Ratio '90-95	2.18	2.33	2.33	2.30
Ratio 80 CSO Basic	1.51	1.52	1.57	1.69

**AGE 45 MALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.78	0.85	0.87	0.89
Basic '90-95 SM	2.32	2.20	1.92	1.74
Ratio '90-95	2.97	2.59	2.21	1.96
Ratio 80 CSO Basic	1.89	1.90	1.94	1.95

**AGE 55 MALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.83	0.80	0.81	0.85
Basic '90-95 SM	2.68	2.54	2.24	1.92
Ratio -90-95	3.23	3.18	2.77	2.26
Ratio 80 CSO Basic	1.94	1.92	1.86	1.74

**AGE 65 MALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.90	0.90	0.89	0.87
Basic '90-95 SM	2.91	2.32	1.92	1.98
Ratio '90-95	3.23	2.58	2.16	2.28
Ratio 80 CSO Basic	1.72	1.69	1.60	1.45

**AGE 25 FEMALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.82	0.84	0.81	0.82
Basic '90-95 SM	1.68	1.64	1.31	1.32
Ratio '90-95	2.05	1.95	1.62	1.61
Ratio 80 CSO Basic	1.18	1.20	1.23	1.31

**AGE 35 FEMALE SM/NS EXPERIENCE
BASIC 1990-95 VS. 1980 CSO SCALING FACTORS**

	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.83	0.95	0.94	0.84
Basic '90-95 SM	1.84	1.84	1.62	1.57
Ratio '90-95	2.22	1.94	1.72	1.87
Ratio 80 CSO Basic	1.32	1.34	1.41	1.53

AGE 45 FEMALE SM/NS EXPERIENCE BASIC 1990-95 VS. 1980 CSO SCALING FACTORS				
	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.87	0.97	0.82	0.75
Basic '90-95 SM	1.93	1.89	1.75	1.72
Ratio '90-95	2.22	1.95	2.13	2.29
Ratio 80 CSO Basic	1.54	1.55	1.56	1.54

AGE 55 FEMALE SM/NS EXPERIENCE BASIC 1990-95 VS. 1980 CSO SCALING FACTORS				
	Duration 1	Duration 2	Duration 5	Duration 10
Basic '90-95 NS	0.90	0.87	0.74	0.69
Basic '90-95 SM	1.86	1.94	2.40	2.31
Ratio '90-95	2.07	2.23	3.24	3.35
Ratio 80 CSO Basic	1.53	1.53	1.49	1.42

The 1990-95 experience data introduces characteristics of the underlying business in addition to smoking status. It should be noted that at the younger ages, the pattern in the 1990-95 experience data is somewhat different than in the 1980 CSO scaling factors. These lives are most susceptible to replacement by preferred products as a small increase in premium due to increase in issue age is outweighed by a large decrease in premiums due to meeting preferred underwriting criteria. Assuming more preferred nonsmoker lives have re-entered the insurance population, would cause the difference to narrow. Also, the difference between smoker and nonsmoker mortality with the 1990-95 experience data are widest at the earliest durations. The effect of underwriting does imply a strong select and ultimate approach to nonsmoker/smoker differences.

There are several sources of possible distortion in mortality experience among insured lives by smoking status. Primarily among these are:

- Underwriting standards used to screen and classify risk have varied and continue to vary from company to company in evaluating whether an applicant qualifies for nonsmoker rates. This can take many forms such as how long an individual must be smoke free to differences in minimum policy sizes (and thus underwriting requirements) for nonsmoker discounted policies.

- When companies began nonsmoker/smoker premium classes, some companies used criteria besides smoking habits to assure that a significant improvement in mortality could be expected among those qualifying as “nonsmokers.” As an example, nonsmokers may have had to satisfy certain build, blood pressure and/or other qualification criteria to be considered for “nonsmoker” rates that were more restrictive than the “smoker” category.
- New product innovations through time have been most advantageous to the healthiest of non-tobacco using individuals. It is likely that selective lapsation has taken place with these individuals as well as with former smokers that qualified for non-smoker rates.

The net impact of these issues is to significantly muddy the waters with respect to isolating the impact of smoking on insured lives mortality. In fact, these issues are among those discussed in the Report of the Task Force on Smoker/Nonsmoker Mortality article found in the 1982 Reports.

For completeness, in the Society of Actuaries Transactions of 1982 (vol. 32), data from four companies are presented. Those results are summarized below.

SMOKER/NONSMOKER MORTALITY							
Issue Ages	State Mutual Dur 1-5	State Mutual Dur 6-10	State Mutual Dur 11-15	Phoenix Mutual Dur 1-10	Home Life Dur 1-8	Sun Life <21 cigs	Sun Life >20 cigs
15-29				0.63	2.48	1.57	1.61
30-39	10.9	4.1	4.2	3.33	1.50	2.15	2.21
40-49	1.8	4.3	4.3	1.84	2.22	1.85	2.42
50-59	2.6	4.3	2.3	1.64	2.25	2.38	3.00
60+				2.37	0.72	2.04	2.25

The second piece of data to consider is the relative prevalence of smoking in the underlying population.

The 1990-95 experience data included 3 types of exposure by amount categories: smokers, non-smokers and smoking status unknown (“unknowns”). In the early durations the percent of unknowns were generally in the 10-15% range. Unfortunately, in the later durations (13+) the unknown smoking status exposure often represented the bulk (50%+) of the total exposure. Assumptions were needed on how to split this unknown exposure between the known smoking exposure groups. Additionally, smoking prevalence data after 15 durations is currently not available.

Representative ages and durations of male exposure data are highlighted below.

MALE NS/SM/UNKNOWN EXPOSURE PERCENTAGES BASIC MORTALITY TABLES 1990-95				
	Duration 1	Duration 5	Duration 10	Duration 15
Age 25-29	77%/12%/11 n/	76%/10%/14 n/	72%/10%/18 n/	4%/6%/90%
Age 35-39	75%/12%/12 n/	76%/11%/13 n/	73%/12%/15 n/	7%/6%/87%
Age 45-49	75%/12%/13 n/	75%/12%/13 n/	71%/14%/15 n/	9%/5%/86%
Age 55-59	75%/11%/14 n/	77%/11%/12 n/	73%/13%/13 n/	13%/5%/82%
Age 65-69	78%/9%/12% n/	82%/9%/10% n/	76%/11%/14 n/	15%/6%/79%

The 1990-95 Basic Mortality Tables report shows the full pattern of exposures by duration among those that can be segmented into smoker, nonsmoker or unknown issues.

Due to the large proportion of exposures classified in the unknown smoking category in later durations, a method was needed to split this category between the smoking and non-smoking categories. It was decided that the unknown category would be split by applying the smoking prevalence estimates derived through the first modification of Pechmann's data described later in Section III.B of this report. This revised smoking prevalence estimate was reduced another 50% to reflect the difference between the exposure by amount insured lives smoking prevalence data and the exposure by number smoking prevalence data that Pechmann's study represents.

The availability of only 15 durations of exposure meant that a trending of data was again required by duration. Estimates for females suggested the presence of an early durational peak in smoking prevalence in middle age. As a result, trending had to be carried out on either side of this age range in the early durations. The final trended prevalence estimates for males and females are included below.

ESTIMATES OF INSURED SMOKING PREVALENCE FROM 90-95 DATA							
	Duration						
Males	1	5	10	15	20	25	30
20	14.7%	14.7%	14.6%	14.5%	14.5%	14.4%	14.4%
25	14.4%	14.3%	14.1%	14.0%	13.9%	13.8%	13.7%
30	14.0%	13.8%	13.7%	13.5%	13.4%	13.2%	13.1%

ESTIMATES OF INSURED SMOKING PREVALENCE FROM 90-95 DATA

	Duration						
35	13.7%	13.4%	13.2%	13.0%	12.8%	12.6%	12.4%
40	13.3%	13.0%	12.8%	12.5%	12.3%	12.0%	11.7%
45	12.9%	12.6%	12.3%	12.0%	11.7%	11.4%	11.1%
50	12.6%	12.2%	11.9%	11.5%	11.2%	10.8%	10.4%
55	12.2%	11.8%	11.4%	11.0%	10.6%	10.2%	9.8%
60	11.9%	11.4%	11.0%	10.5%	10.0%	9.6%	9.1%
65	11.5%	11.0%	10.5%	10.0%	9.5%	9.0%	8.5%
70	11.2%	10.6%	10.1%	9.5%	8.9%	8.4%	7.8%
75	10.8%	10.2%	9.6%	9.0%	8.4%	7.8%	7.1%
80	10.5%	9.8%	9.1%	8.5%	7.8%	7.2%	6.5%

ESTIMATES OF INSURED SMOKING PREVALENCE FROM 90-95 DATA

	Duration						
Females	1	5	10	15	20	25	30
20	10.5%	10.8%	11.2%	11.3%	11.9%	11.8%	11.6%
25	11.5%	11.5%	11.5%	11.4%	11.4%	11.1%	10.7%
30	12.5%	12.2%	11.9%	11.6%	11.0%	10.4%	9.8%
35	13.5%	12.8%	12.2%	11.7%	10.5%	9.7%	8.9%
40	14.5%	13.5%	12.5%	11.8%	10.1%	9.0%	7.9%
45	15.5%	14.2%	12.9%	10.7%	9.6%	8.3%	7.0%
50	18.7%	15.8%	12.9%	10.5%	9.1%	7.6%	6.1%
55	17.6%	15.1%	12.5%	10.3%	8.7%	6.9%	5.2%
60	16.6%	14.4%	12.2%	10.1%	8.2%	6.2%	4.3%
65	15.5%	13.7%	11.8%	10.0%	7.8%	5.6%	3.3%
70	14.4%	13.0%	11.5%	9.8%	7.3%	4.9%	2.4%
75	13.4%	12.3%	11.2%	9.6%	6.8%	4.2%	1.5%
80	12.3%	11.6%	10.8%	9.4%	6.4%	3.5%	0.6%

III.B POPULATION LIVES DATA

In addition to a review of published insurance studies, a literature search was undertaken to identify clinical studies that detail the relative mortality risk of smokers vs. nonsmokers. Two basic types of prospective population studies were identified in this search.

The first type of study followed individuals over a period of time and reported a summary relative mortality risk estimate for the entire period. Depending on the size of the study, estimates might have been stratified over one or two criteria such as age and gender.

A more limited subset of large prospective studies again followed individuals over a certain period of time and estimated relative mortality risk. In addition, they also published all-cause mortality risk prediction equations. These risk prediction equations calculated estimates of the probability of death over a given period of time. By comparing the probability of death in smokers vs. nonsmokers while holding all other variables constant, it was possible to derive a relative mortality risk estimate. The availability of these equations allowed for a range of risk estimates to be derived by varying one or more of the variables. However, the accuracy of the risk equation in predicting relative mortality risk differences can be expected to decline as the manipulated variables are moved further away from mean age and duration of follow-up of the study.

In contrast to the point estimates of relative risk available in some insurance studies almost all of the clinical studies report a summary relative risk over a varying follow-up time frame. For the purposes of our analysis, it was assumed that this period risk estimate was equivalent to a point estimate half way through the period. Some rounding up and down of follow-up periods was necessary in order to include as many data points as possible. The following discusses some of the key observations from the various studies:

- **Age:** After middle age the magnitude of the percentage differential appears to decrease. The decrease may be a byproduct of an increasing mortality ratio in non-smokers and a possible decrease in the death rate of the remaining smokers due to a decrease in susceptibility to the deleterious effects of continued smoking or a cessation or cutback of smoking by some of those classified as smokers.
- **Gender:** Gender effects are complex, and prospective studies not controlling for magnitude of smoking exposure or age distribution have reported mixed results. Historically, smoking females consumed smaller quantities of cigarettes than males. The magnitude of tobacco exposure in women has increased resulting in overall increases in relative mortality risk differences compared to earlier periods (Thun 95). Most studies have found similar levels of relative mortality risk with similar levels of smoking exposure.

- Quantity smoked: Studies that distinguished the quantity smoked tend to find higher relative mortality differences between the heaviest smokers and non-smokers.
- Duration of follow-up: Longer term (30-40 years vs. less than 20 years) follow-up studies report greater relative mortality differentials with increase in period of follow up. In some studies this enlarging effect could be due to an increasingly unhealthy residual persistent smoking cohort.
- Co-morbidity status at time of study entry: Some studies of the relative mortality of smokers vs. non-smokers do not describe if they screened for pre-existing disease at the time of study entry. In the absence of such screening, it is likely that the prevalence of underlying disease in middle and older ages will be higher in smokers compared with non-smokers. This could inflate the relative mortality differences.
- Inclusion of ex-smokers not screened for prevalent disease in non-smoking cohorts: A small portion of individuals who stop smoking do so because of deteriorating health. If a study has included such individuals in a non-smoking cohort this would tend to decrease the relative mortality difference between continued smokers and the non-smoking/ex-smoking cohort.
- Secular period: Based on a Scandinavian study if degree of smoking exposure is held constant there appears to be no increase or decrease in excess mortality associated with smoking over different time periods.
- Ascertainment of continued smoking status: Individuals initially classified as smokers in long term prospective studies may have smoking discontinuance rates of over 50%. If the former smoking group continues to be analyzed as "smokers" the mortality risk differences between groups will be artificially reduced.

A summary of the clinical studies that provide relative mortality risk differences between smokers and nonsmokers are contained in Appendix B of this paper. From these data points a trend line was developed.

As discussed previously, in order to split any aggregate mortality assumption, not only are relative differences in mortality needed, but prevalence estimates are needed as well.

Epidemiologic literature from the general population on cohort specific smoking prevalence over time is not available. Therefore an important assumption was required about the prevalence of smoking in a general population cohort over long durations. In this exercise it was assumed that the prevalence of smoking in an aging cohort would resemble the prevalence in the next older cohort that was under-study. In general this meant that smoking status declined with increasing age, duration of follow-up and over successive secular periods.

The general population references consulted were published by Pechmann et al (1998) and the US Surgeon General. Pechmann's article was the primary resource utilized in the development of trended prevalence estimates of the general population. Pechmann included smoking prevalence estimates for males and females from 1974 to 1994 and trended prevalence estimates through 1999. His primary data source was 15 yearly administrations of the National Health Interview Survey. Figures detailing the actual data and trended estimates for the US population were included for 4 different age groups (20-24, 25-44, 45-64, 65-80). The most common pattern noted in these figures was a linear decline in smoking prevalence by time. Therefore, a linear extrapolation of the trended prevalence estimates was carried forward for purposes of this exercise. Three of the four age groups demonstrated convergence in gender specific smoking prevalence. Because of this and the relative unknown future prevalence of smoking, a blended gender smoking prevalence estimate was utilized in the forward trending.

The following table lists the gender specific prevalence estimates in the US population over time measured or extrapolated off of the figures included in Pechmann's article.

RAW SMOKING PREVALENCE FOR GENERAL POPULATION					
Men	Age Group				
	20-24	25-44	45-65	65-80	
1980	38.0%	43.1%	41.5%	21.3%	
1990	26.7%	32.9%	29.7%	15.8%	
2000	22.5%	25.1%	23.7%	11.0%	<i>Trended</i>
Women	20-24	25-44	45-64	65-80	
1980	33.2%	34.7%	32.6%	13.4%	
1990	23.7%	28.1%	26.1%	12.2%	
2000	22.5%	22.7%	16.6%	9.1%	<i>Trended</i>

This baseline data was used to develop smoking prevalence estimates, first by ten-year and then by five-year age group. Mid decade (1985, 1995, etc) smoking prevalences estimates were assumed to be an average of the boundary years (1980 & 1990 for 1985, etc.). The resulting matrix formed the core data used to estimate changes in smoking prevalence by age and duration. Prevalence estimates by duration were read diagonally off the final table.

Two different modifications of this core general population data were made. The first modification utilized information in the Surgeon General's report. This report contained information on the prevalence of smokers in the white population in addition to the prevalence of smokers who were college educated for the years 1965 thru 1995. This data was also extrapolated forward. The prevalence of college educated smokers divided by the prevalence of smokers in the general

population created a ratio that could be observed for changes in magnitude over time. The ratio was noted to decline over the reporting period. This suggested that a decreasing percentage of current smokers were college educated, especially after 1990. Using an assumption that a greater proportion of insurance buyers were college educated and using the ratio as a guide, Pechmann's population smoking prevalence estimates were reduced. This reduction did not alter the pattern of declining prevalence after young adulthood and with increasing duration apparent from the original data.

The second modification involved lowering Pechmann's data by a direct percentage. The recommended percent reductions were typically between 10 and 20% of the original population data. Higher reductions were utilized at the oldest ages. Compared to the first modification, these prevalence estimates are similar but somewhat higher than the estimates that resulted from the first modification described above. To allow for a comparison between the population modified data and the SOA 1990-95 experience data derived smoking prevalence data, these prevalence estimates are presented in the following tables for males and females. They should be viewed as trended approximations of contemporary smoking prevalence in an insured population.

ESTIMATES OF INSURED SMOKING PREVALENCE FROM PECHMANN'S DATA

Males	Duration						
	1	5	10	15	20	25	30
25	20.3%	18.6%	18.3%	16.4%	14.4%	12.9%	11.3%
30	21.5%	18.8%	17.5%	15.6%	13.5%	12.0%	9.8%
35	22.6%	17.4%	16.8%	14.7%	12.6%	10.3%	8.2%
40	22.1%	16.0%	16.0%	13.9%	10.8%	8.6%	6.8%
45	21.5%	14.6%	15.1%	11.9%	9.1%	7.1%	5.4%
50	20.8%	13.1%	13.0%	9.9%	7.5%	5.6%	5.6%
55	20.2%	11.4%	10.8%	8.1%	5.8%	5.7%	5.8%
60	17.2%	9.8%	8.8%	6.3%	5.8%	5.8%	5.0%
65	14.2%	8.2%	6.8%	6.4%	5.8%	5.0%	4.3%
70	11.5%	6.7%	7.0%	6.5%	5.0%	4.3%	3.0%
75	8.8%	6.1%	7.2%	5.7%	4.3%	3.0%	1.5%
80	9.4%						

III.C SCALING RECOMMENDATIONS

The final step was to take all of the above information and establish the relative risks and prevalence estimates for smokers and nonsmokers given all of the relevant data. The relative risks and prevalence factors for smokers and nonsmokers were then used to develop smoker/nonsmoker factors which were then applied to the composite Valuation Basic Tables for males and females respectively.

Graphs that contain relevant data discussed in III.A and III.B are located in Appendix B. The size of the points on the graphs represent relative amounts of data. Larger points represent relatively more data. Conversely, smaller points represent relatively less data. From these studies, trend lines have been developed and presented to determine relative risk estimates.

Prevalence estimates, derived from two different sources of data, indicate a decline in smoking with age and duration. The rate of decline in the insurance data is somewhat flatter than what was projected for the general population. Prevalence estimates from the 1990-95 Basic Mortality Tables in the early durations are lower than what was postulated for an insured cohort from Pechmann's data. Trending of the SOA 1990-95 data experience resulted in lower late duration smoking prevalence estimates in middle aged and elderly females compared to the similar aged males.

The final prevalence estimates were computed into a 25-year select and ultimate format. A summary of these estimates are displayed below.

ESTIMATES OF INSURED SMOKING PREVALENCE FROM PECHMANN'S DATA

Females	Duration						
	1	5	10	15	20	25	30
25	20.3%	18.6%	17.2%	15.2%	13.4%	11.9%	10.6%
30	20.4%	18.8%	16.0%	14.0%	12.2%	10.8%	9.2%
35	20.5%	17.4%	14.7%	12.8%	11.1%	9.4%	7.8%
40	18.9%	16.0%	13.4%	11.6%	9.6%	8.0%	6.5%
45	17.3%	14.6%	12.1%	10.1%	8.2%	6.6%	5.2%
50	15.7%	13.1%	10.5%	8.6%	6.8%	5.3%	5.0%
55	14.1%	11.4%	9.0%	7.2%	5.5%	5.0%	4.8%
60	12.3%	9.8%	7.5%	5.8%	5.1%	4.8%	3.9%
65	10.6%	8.2%	6.1%	5.4%	4.8%	3.9%	3.1%
70	8.9%	6.7%	5.6%	4.9%	3.9%	3.1%	2.2%
75	7.3%	6.1%	5.1%	4.1%	3.1%	2.2%	1.1%

ESTIMATES OF INSURED SMOKING PREVALENCE FROM PECHMANN'S DATA

Duration

80 6.6%

MALES – SMOKING PREVALENCE						
Age	Duration 1	Duration 2	Duration 10	Duration 15	Duration 20	Duration 25
25	14.4%	14.3%	14.1%	14.0%	13.9%	13.8%
35	13.7%	13.4%	13.2%	13.0%	12.8%	12.6%
45	12.9%	12.6%	12.3%	12.0%	11.7%	11.4%
55	12.2%	11.8%	11.4%	11.0%	10.6%	10.2%
65	11.5%	11.0%	10.5%	10.0%	9.5%	9.0%

FEMALES – SMOKING PREVALENCE						
Age	Duration 1	Duration 2	Duration 10	Duration 15	Duration 20	Duration 25
25	11.5%	11.5%	11.5%	11.4%	11.4%	11.1%
35	13.5%	12.8%	12.2%	11.7%	10.5%	9.7%
45	15.5%	14.2%	12.9%	10.7%	9.6%	8.3%
55	17.6%	15.1%	12.5%	10.3%	8.7%	6.9%
65	15.5%	13.7%	11.8%	10.0%	7.8%	5.6%

Nonsmoker/smoker factors were developed using the relative risk estimates and the smoking prevalence estimates described above.

The preliminary composite Valuation Basic Tables for males and females were then multiplied by the non-smoker/smoker factors and projected using mortality projection assumptions. The resulting product was not uniformly smooth based on the rules established discussed in II.A. If the result was not smooth and a corresponding lack of smoothness existed in the preliminary composite table, no change was made. Otherwise, the resulting product was smoothed by:

- Numerous changes of .00001 to .00005
- Log-linear interpolations
- At older issue ages, setting values equal to ultimate values along attained age diagonals.

The resulting tables are the non-smoker and smoker Valuation Basic Tables for males and females.

IV. CONSIDERATION FOR MORTALITY IMPROVEMENT

In developing the Valuation Basic Tables, the Task Force explored mortality improvement in both insured and non-insured populations and put forth a recommendation as to how the mortality experience underlying the 1990-95 Basic Mortality Tables could be projected to 2001, the projected date at which the new valuation table will be released.

Mortality improvement up to the start date of the Valuation Base Tables has been considered by the Task Force for the following reasons:

- The experience underlying the table has a central year of 1992.
- Mortality improvement has been experienced in both insured and population mortality in recent years.
- The Task Force does not know of any recent major event that would result in a material increase in mortality in emerging experience.

It is the Task Force's opinion that best actuarial practice is to assume some mortality improvement up to the start date of the Valuation Basic Tables in its construction.

Consideration has also been given to projecting mortality improvement past the projected start date of the Valuation Basic Tables. However, it is the opinion of the Task Force that the Valuation Basic Tables should not reflect mortality improvement past its start date. Although some companies may anticipate mortality improvement past the start date of the Valuation Basic Tables, life insurance mortality tables used in a regulatory environment (model illustration regulation, XXX) have not allowed the use of mortality improvement. A future event could have a significant negative or positive impact on mortality, this cannot be predicted. Therefore, no mortality improvement past the start date of the Valuation Basic Tables will be utilized.

This section reviews trends in mortality improvement in both insured lives and non-insured lives and presents the mortality improvement factors used in the construction of the valuation base tables.

IV.A. INSURED LIVES

Mortality improvement in insured lives from the 1985-90 Basic Mortality Tables to the 1990-95 Basic Mortality Tables has been examined. Mortality improvement in this period has been considered for the following reasons:

- It is the most recent SOA experience available.
- The tables have similar structures (i.e., the same select and ultimate period).

- The 1990-95 Basic Mortality Tables is the basis of the Valuation Basic Tables.

The Task Force recognizes that there may be many reasons for differences in mortality between the two tables that is not directly related to underlying improvement in insured mortality, including:

- Changes in the proportion of smokers
- Changes in the proportion of medical/non-medical
- Changes in underwriting
- The impact of AIDS

However, the Task Force believes that it is reasonable to review the change in mortality between the two tables (in conjunction with a review of other non-insured sources), to determine an opinion as to how to bring the experience up to a 2001 table start date.

Mortality improvement between the two tables has been reviewed as follows:

- Separately for males and females
- Durations 1, 5, 10 and 20 for quinquennial issue ages beginning with issue age 0
- Ultimate mortality for quinquennial ages beginning with attained age 25

The following is a summary of the experience:

Implied Annual Mortality Improvement – SOA Male Experience (1985-90 to 1990-95)						
Issue Age	Duration 1	Duration 5	Duration 10	Duration 20	Attained Age	Ultimate
15	2.7%	2.9%	2.4%	-2.6%	25	4.0%
25	5.0	2.0	0.4	-2.1	35	-2.7
35	5.4	3.4	2.6	2.0	45	-1.0
45	8.4	5.5	1.8	-0.3	55	1.5
55	3.1	6.4	1.9	2.2	65	0.7
65	9.1	0.7	2.1	1.1	75	1.7
75	0.5	-0.4	1.2	-2.6	85	0.9

Implied Annual Mortality Improvement – SOA Female Experience (1985-90 to 1990-95)

Issue Age	Duration 1	Duration 5	Duration 10	Duration 20	Attained Age	Ultimate
15	-1.5%	5.0%	4.9%	-1.6%	25	5.8%
25	1.7	6.3	-2.4	1.3	35	-2.1
35	2.9	2.9	3.9	0.3	45	1.3
45	1.7	3.3	3.2	-0.9	55	-0.8
55	-1.1	1.3	3.7	-0.7	65	-1.1
65	-2.6	3.5	-2.4	-0.2	75	-1.1
75	-0.4	0.3	2.6	1.0	85	-0.5

There appears to be much wider variance in the change in mortality between select mortality and ultimate mortality. This may be due in part to the impact of changes in underwriting and the impact of AIDS. If separate mortality improvement factors were utilized for select and ultimate experience, this could result in a material change in the slope of the table. We also believe that the experience in the ultimate durations is more heterogeneous and therefore is more representative of the underlying change in mortality. The Task Force’s intent in utilizing mortality improvement was to recognize underlying trends in overall mortality improvement and not to project how changes in underwriting will affect the slope of mortality between the experience period (1990 – 1995) and 2001. For these reasons, we have not utilized changes in select mortality in deriving a recommended mortality improvement factor.

IV.B. NON-INSURED LIVES

We have compared levels of mortality improvement from various non-life insurance sources. Non-life insurance sources provide an indication of the underlying level of mortality improvement in the population as a whole. The sources we have reviewed are as follows:

- General U.S. population over the period 1989-1998
- RP-2000 Study data
- Social Security data for the period 1990-1994
- Federal Civil Service data for the period of 1988-1996
- SOA Group Annuitant Mortality for the period 1988-1994

It should be noted the last four sources were obtained from the documentation of the RP-2000 tables. The following tables provide a summary of annual percentage improvement in mortality from the different sources.

Annual Improvement in Male Mortality – Various Sources					
Attained Ages	Population	RP-2000	Social Security	Federal Civil Service	GAM
25-29	3.4%	-1.1%	1.0%		0.0%
35-39	3.6	2.2	-1.4		0.7
45-49	1.2	2.0	0.6		1.7
55-59	2.0	4.5	1.8	1.1	1.8
65-69	1.6	1.5	1.0	0.9	1.2
75-79	1.0	1.1	1.1	1.6	2.3
85-89	0.5	0.2	-0.5	0.8	1.3

Note: Population mortality improvement is between the 1989-91 decennial tables and the 1998 table.

Annual Improvement in Female Mortality – Various Sources					
Attained Ages	Population	RP-2000	Social Security	Federal Civil Service	GAM
25-29	4.7%	13.9%	0.0%		0.9%
35-39	0.0	-7.5	-2.2		0.8
45-49	1.1	-4.6	0.6		1.9
55-59	1.2	5.3	1.1	0.9%	0.8
65-69	0.6	0.4	-0.1	0.4	0.7
75-79	0.4	-0.9	-0.1	1.1	1.5
85-89	-0.1	-1.3	-0.5	0.3	0.9

Note: Population mortality improvement is between the 1989-91 decennial tables and the 1998 table.

IV.C. OBSERVATIONS AND RECOMMENDATIONS

It is difficult to infer a specific relationship between attained age and mortality improvement that is applicable to a mortality table. However, we have made the following observations regarding mortality improvement:

- Mortality improvement has tended to be higher for males than for females.
- Mortality improvement has tended to be less at attained ages under 45 and attained ages above 85.
- Mortality improvement for males ages 55 – 80 appears to be in the range of 1.0% for Social Security and Federal Civil Service data. Insured experience appears to be somewhat higher.
- Mortality improvement for females appears to be in the range of 0.5% for ages 55 – 80.
- In some of the studies, female mortality has recently deteriorated.

Based on the above observations, the following mortality improvement factors have been utilized to project the underlying data from 1992 to 2001, the start date for the Valuation Basic Tables:

Annual Mortality Improvement		
Attained Age	Male	Female
0-45	0.0%	0.0%
grading to		
55-80	1.0	0.5
grading to		
85	0.5	0.5
grading to		
90+	0.0	0.0

V. PREFERRED RISK CLASSES

Throughout the 1990's, there has been an increased use of preferred risk classes. Preferred risk classes have been primarily used with term insurance products, however, preferred risk classes can also be found on universal life, variable universal life and other permanent life insurance products.

The following observations can be made regarding preferred risk classes:

- A preferred risk is an insured life that has satisfied certain medical and non-medical criteria that are stricter than those required for standard issues. Typical criteria assessed for preferred risks include, but are not limited to, build, blood pressure, cholesterol level, drug and alcohol history, personal medical history, family medical history and driving record.
- Today, there may be more than one preferred nonsmoker risk class (e.g., super-preferred nonsmoker and preferred nonsmoker). If there are preferred smoker risk classes, it is less likely that there will be multiple preferred smoker risk classes.
- The criteria for preferred risk classes vary greatly by company. There is no standard, commonly accepted definition of a preferred risk in the life insurance industry.

Life insurance companies will price preferred risk products with a mortality assumption that is less than the mortality assumption for a standard risk. Considerations that a life insurance company will use in setting the preferred risk mortality assumption include:

- Past mortality levels for standard underwritten risks
- The conservatism or liberalism inherent in the preferred risk criteria
- The proportion of insureds qualifying for preferred risk classes
- The view that the individual company has on the impact of preferred risk criteria on ultimate mortality levels

The Task Force has considered varying the basic mortality table by preferred risk class. As with smoker/nonsmoker distinct experience, experience with preferred lives is limited. However, there is no clear definition of preferred risk in the industry, as opposed to the definition of smoker/nonsmoker status, which is relatively consistent in the industry. Given that there is no clear definition of preferred risk in the industry, and the lack of experience, the Task Force believes it prudent to not have a separate mortality table for preferred risks.

VI. CONSIDERATION FOR AIDS

AIDS has had a material impact on the level of mortality in the general population and the level of mortality in the insured population. The impact of AIDS on insured and non-insured populations is focused on males in the age range of 25 – 49. Also, based on trends in AIDS mortality in the general population, it is reasonable to expect that there will be a decrease in reported deaths due to AIDS in insured experience in the period 1995 – 2000.

To adjust the 1990-95 Basic Mortality Tables for a decreasing trend in AIDS-related death claims, it would be reasonable to reduce the 1990 – 1995 experience by 50% of reported AIDS claims. This could be considered conservative, as it is generally believed that AIDS deaths of insured lives are under-reported and there appears to be an even greater decrease in the level of AIDS-related deaths in the general population over the period 1995 – 1998. Given that reported AIDS claims generally made up less than 2% of claims (with a maximum of 11% for male issue ages 20-29 in durations 6-10), this would result in less than a 1% reduction in mortality levels at most ages and a maximum reduction in mortality of 5%. It is the opinion of this Task Force that it is more appropriate to address AIDS claims implicitly in the graduation of the Valuation Basic Tables as described in Section II.

VII. VALUATION BASIC TABLES

Valuation Basic Tables have been created and are applicable for use with ordinary life insurance. The valuation basic tables have a 25-year select period for issue ages 0 through 99 and the tables have a final age of 120. The Valuation Basic Tables have been created for the following risk classes:

- Male Composite
- Male Nonsmoker
- Male Smoker
- Female Composite
- Female Nonsmoker
- Female Smoker

Consideration has been given for the development of a separate table for extended term insurance (“ETI”). The Task Force obtained information from only one company; this information indicated that there was not a material difference between ETI mortality and ordinary insured mortality. The Task Force believes that the increasing prevalence of universal life and variable universal life has reduced the importance of ETI as a non-forfeiture option and therefore the amount of ETI exposures. Given the ETI experience collected and the limited amount of ETI exposures, it was determined that a separate “ETI” table was not warranted.

A complete version of each of the tables and a comparison of the tables to the 1990-95 Basic Mortality Tables and the 1998 U.S. Population tables (ultimate only) is attached.

Some observations regarding the tables are as follows:

- Ultimate and later duration male mortality at attained ages 25 through 40 is materially lower than the 1990-95 experience tables. This is a result of the

adjustment made to the table in areas where experience was significantly higher than the SOA 1975-80 experience table.

- Early duration female mortality is relatively close to male mortality at issue ages 45 through 55. This is representative of the experience at these ages, for example, in the 1990-95 experience table, issue age 50, duration 4 female mortality is 99.7% of male mortality at the equivalent issue age and duration.
- There was no reasonable insured experience for older age ultimate female mortality, as opposed to male ultimate mortality where VA experience was utilized. The Task Force observed that the gap between female and male mortality widened at these ages. However, no modification was made as the Task Force focused on the smoothness of the tables at these ages for females instead of applying a strict relationship between male and female mortality.
- The ratio of smoker mortality to composite mortality in the tables is less than that observed in the 1990-95 experience tables. The Task Force was concerned that differences in the average size of smoker and nonsmoker policies was impacting the 1990-95 experience and utilized techniques to reflect only differences due to smoking status.

VIII. ACKNOWLEDGEMENTS

The Task Force gives special thanks to Jack Bragg and Associates, the Railroad Retirement Fund and the Veterans' Administration for their cooperation during the development of the Valuation Basic Tables.

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1. 1980 CSO and CET Mortality Tables on an Age Last Birthday Basis, TSA, Vol. 33, pp. 617-674
2. Report of the Task Force on Smoker/Nonsmoker Mortality, TSA 1982 Reports, pp. 343-390
3. Thun M, et al., Excess mortality among cigarette smokers: Changes in a 20-year interval, Am J of Public Health 1995; 85:1223-30
4. Pechmann C, Dixon P, Layne N, An assessment of US and Canadian smoking reduction objectives for the year 2000, Am J of Public Health 1998; 88:1362-67
5. Tobacco Use Among US Racial/Ethnic Minority Groups: A Report of the Surgeon General 1998; US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health

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w:\sep01\tf\lha\soa-male.xls

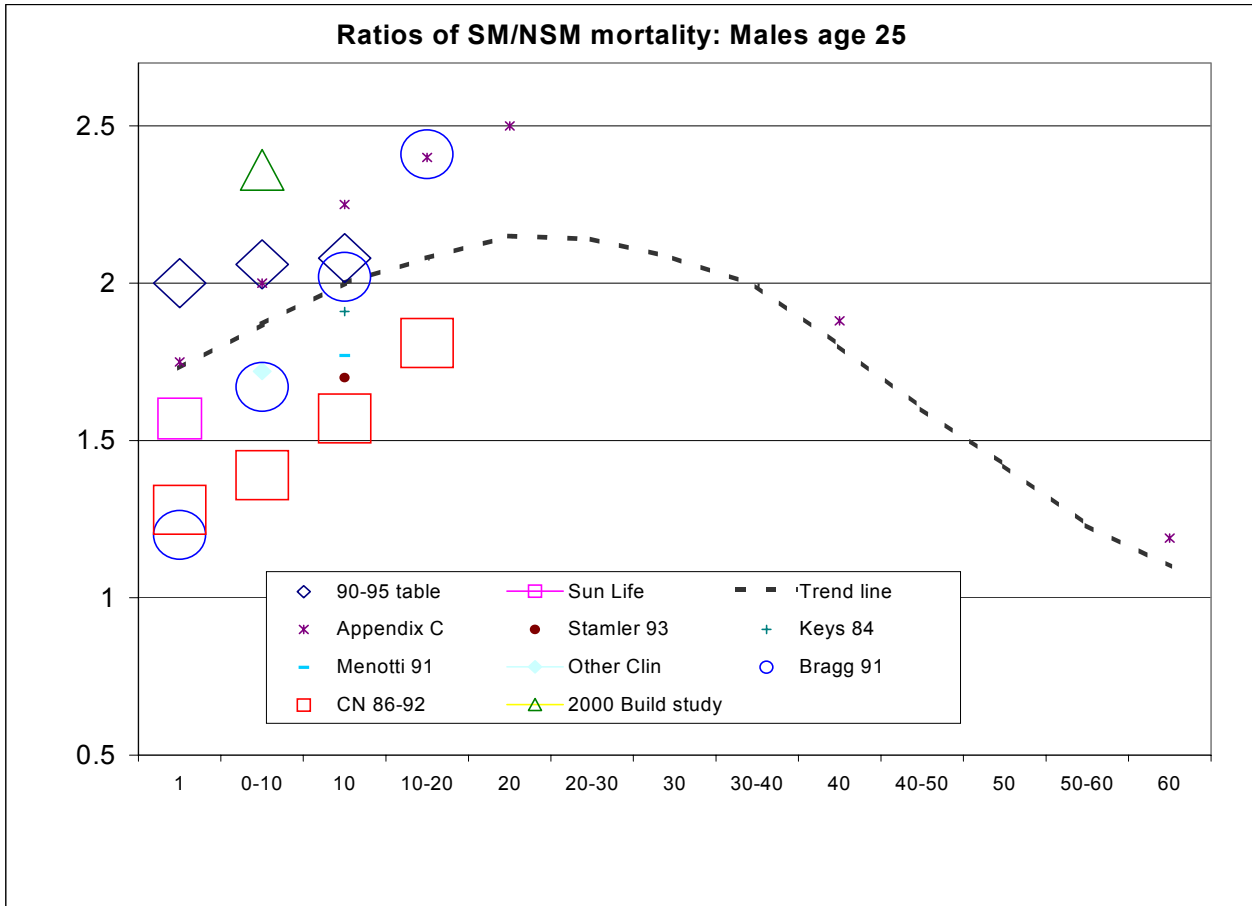
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Individual Life Insurance Valuation Mortality Table Research Task Force

Appendix B

NONSMOKER/SMOKER MORTALITY

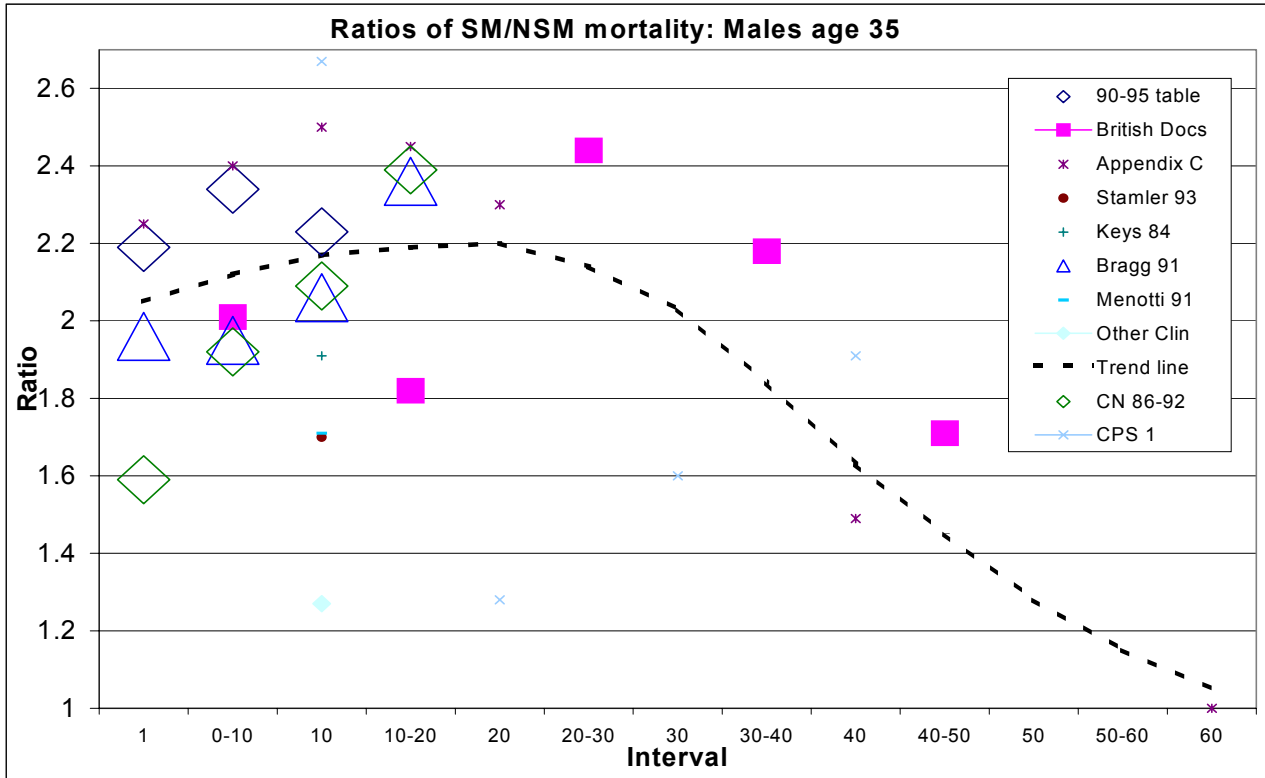
The following are graphs that contain relevant data on the ratio of smoker/nonsmoker mortality discussed in Section III of the report. The size of the points on the graphs represent relative amounts of data. Larger points represent relatively more data. Conversely, smaller points represent relatively less data. From these studies, trend lines have been developed and utilized in the development of relative risk estimates between smoker and nonsmoker mortality.



Durational Ratios Age 25 Male	Ref: 1 90-95 Table	2 Sun Life	3 1982 Reports App. C	5 Stamler 93	6 Keys 84	7 Bragg 91	8 Menotti 91	9 Other Clin	10 CN 86-92	Trend Line
1	2	1.57	1.75			1.2			1.28	1.73
0-10	2.06		2			1.67		1.72	1.39	1.87
10	2.08		2.25	1.7	1.91	2.02	1.77		1.57	2.00
10-20			2.4			2.41			1.81	2.08
20			2.5							2.15
20-30										2.14
30										2.08
30-40										1.99
40			1.88							1.80
40-50										1.60
50										1.42
50-60										1.23
60			1.19							1.10

References

- 1 1990-95 Basic Mortality Tables, SM/NSM q's
- 2 Sun Life Mortality Experience by age at issues: Standard Med-Paramed Issues of 1965-76; 73-77 Anniversaries (<21 cigs/day) in SOA Transactions Vol 32 1980 p. 226
- 3 Appendix C, Report of the Task Force on smoker/nonsmoker mortality, SOA 1982 Ratios for subsequent durations represent the age specific ratios from the table (duration 10 estimate for males age 25 assumed to be equivalent to the age 35 value in the table)
- 5 Relationship of baseline major risk factors to coronary and all-cause mortality (24 year follow-up, summary risk estimate assumed to correspond to average risk at approximately 12 years) Stamler J et al., *Cardiology* 1993;82:191-222
- 6 The seven countries study: 2289 deaths in 15 years (age range of cohort 40-59, risk equation provided and used to estimate risk at 20years, summary risk estimate assumed to correspond to average risk at approximately 10 years) Keys A, et al., *Preventive Medicine* 13, 141-154 1984
- 7 1991 SM NSM Bragg table
- 8 All cause mortality and its determinants in middle aged men in Finland the Netherlands, and Italy in a 25 year follow-up (Risk equation for Netherlands used, age range of cohort 40-59, summary risk estimates assumed to correspond to average risk at approximately 12 years, plotted at 10 year risk point) Menotti A, et al., *Journal of Epidemiology and Community Health* 1991; 45:125-130
- 9 The mortality of smokers and nonsmokers (derived from table 8 page 89, risk estimate for 20-24yo males, 6.5 years of follow-up) Dorn, HF *Proc Soc Stat Sect Amer Stat Assn* 34-71, 1958
in Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service
- 10 1986-92 Canada CIA Basic table by gender and smoking status

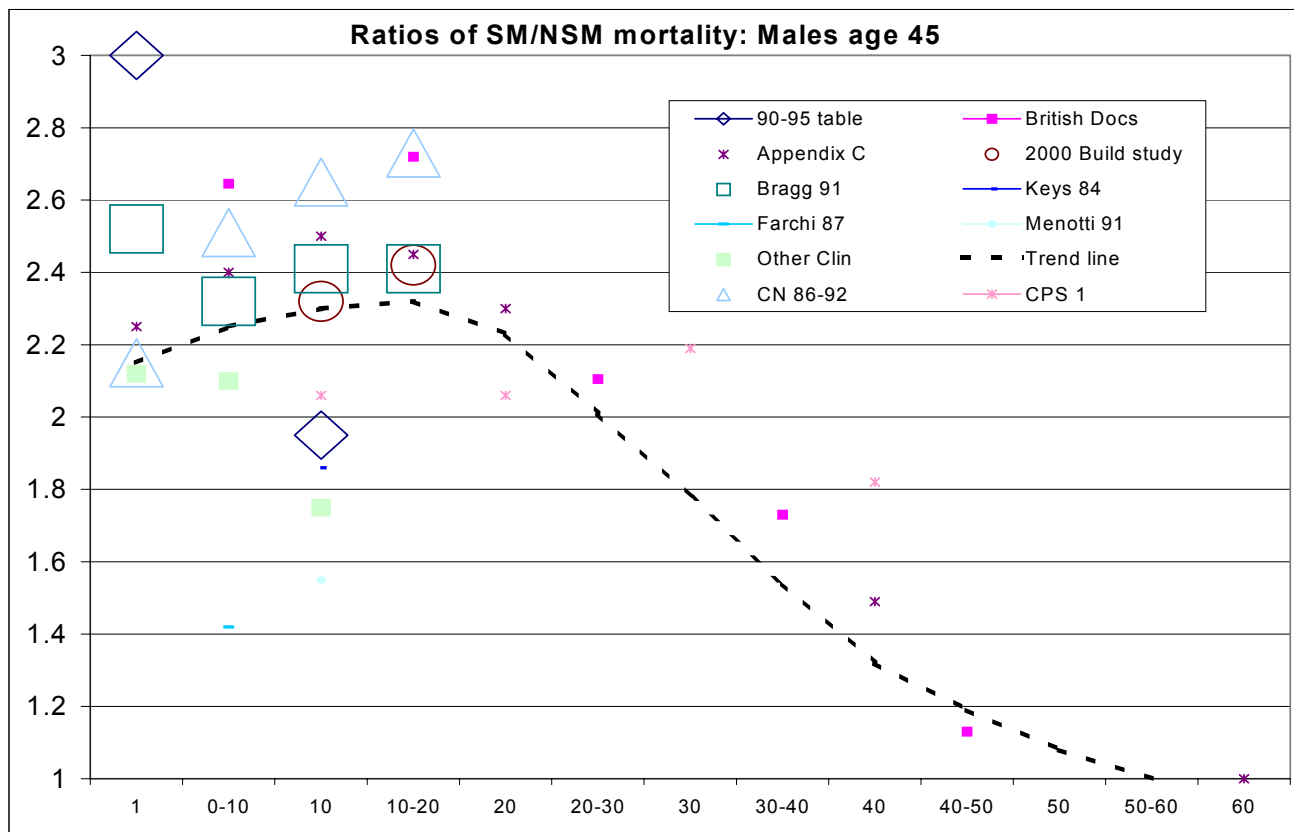


Durational Ratios Age 35 Males	Ref: 1 90-95 Table	11 British Docs	3 1982 Reports App. C	5 Stamler 93	6 Keys 84	7 Bragg 91	8 Menotti 91	12 Other Clin	10 CN 86-92	13 CPS 1	Trend Line
1	2.19		2.25			1.96			1.59		2.05
0-10	2.34	2.01	2.4			1.95			1.92		2.12
10	2.23		2.5	1.7	1.9	2.06	1.71	1.27	2.09	2.67	2.17
10-20		1.82	2.45		1	2.36			2.39		2.19
20			2.3							1.28	2.20
20-30		2.44									2.14
30										1.6	2.03
30-40		2.18									1.84
40			1.49							1.91	1.63
40-50		1.71									1.45
50											1.28
50-60		0.92									1.15
60			1								1.05

References

1, 3, 5-8, as noted above

- 11 Mortality in relation to smoking: 40 years' observations on male British Doctors (estimate calculated from figures included in report)
Doll R, et al., *British Medical Journal* 1994;309:901-11
- 12 Smoking and Health, Report of the Surgeon General, 1979, Chapt. 2 table 5 p. 17(16 yr FU, 30-34 yo male smoking 10-20 cigs/day)
in *SOA Transactions Vol 31, 1980 page 195*
- 13 Smoking cessation and mortality trends among 118,000 Californians, 1960-97 (May represent ratios of attained age death rates)
Enstrom JE, et al., *Epidemiology* 1999 10:500-12



Comparison s of Ratios 25	Ref: 1 90-95 Table	11 British Docs	3 1982 Reports App. C	7 Bragg 91	6 Keys 84	14 Farchi 87	8 Menotti 91	15 Other Clin	10 CN 86-92	13 CPS 1	Trend Line
1	3		2.25	2.52				2.12	2.15		2.15
0-10		2.645	2.4	2.32		1.42		2.1	2.51		2.25
10	1.95		2.5	2.41	1.86		1.55	1.75	2.65	2.06	2.30
10-20		2.72	2.45	2.41					2.73		2.32
20			2.3							2.06	2.23
20-30		2.105									2.01
30										2.19	1.78
30-40		1.73									1.54
40			1.49							1.82	1.32
40-50		1.13									1.19
50											1.08
50-60											1.00
60			1								

References

1, 3, 6-7, 10-11, 13 as noted above

- 14 Coronary Risk Factors and Survival probability for Coronary and Other Causes of Death (age range of cohort 40-59, risk equation provided and used to estimate risk at 10 years) Farchi G et al., *AM Journal of Epidemiology*, 1987;128:400-8
- 15 Dur. 1 est. (1 Special report to the Surgeon General's Advisory Committee on Smoking and Health (age 40-49, 22 months for FU for 10-19 cigs/day) Hammond, EC (Late 50's-60's) in *Smoking and Health*: p 87
Report of the Advisory Committee to the Surgeon General of the Public Health Service

Dur 0-10 Several studies provided risk estimates corresponding to this age and Duration. An average of these values was used.

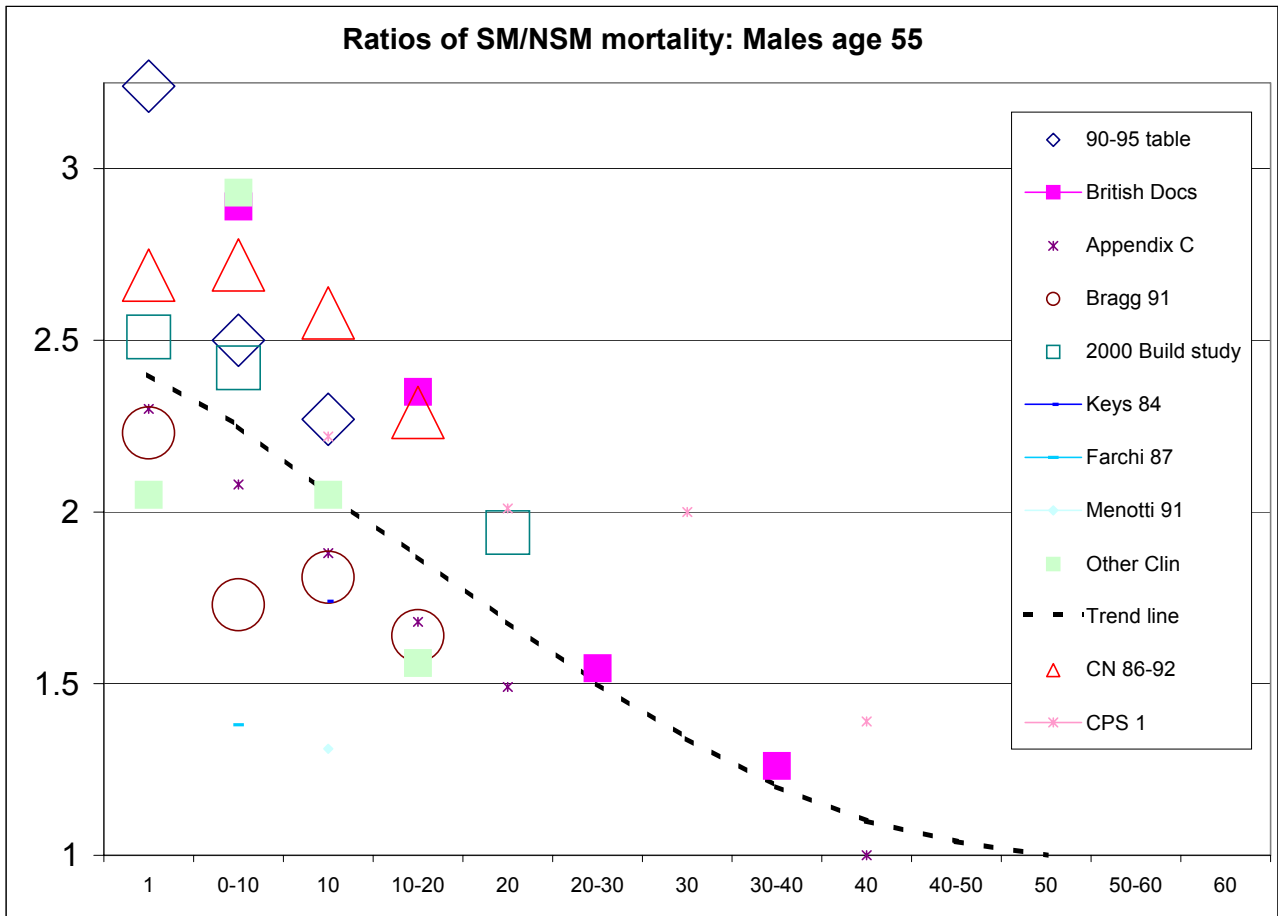
(15e) Upper bound: The mortality of smokers and nonsmokers (estimated from figure 1 p. 88, 6.5 years of follow-up, RR 2.22 Dorn, HF Proc Soc Stat Sect Amer Tat Assn 34-71, 1958 in *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the PublicHealth Service*

(15b) Lower bound: Do cardiovascular disease risk factors predict all-cause mortality? (RR 1.89 after 9 years of follow-up) Norris A, et al., *Int J Epi* 24(5): 906-14

Dur 10 (0-20)Several studies provided risk estimates corresponding to this age And duration. An average of these values was used

(15c) Upper bound: Smoking cessation and mortality trends among 2 US populations (RR age 35-44: 2.08) Enstrom JE, *J Clin Epidemil* 52, 9:813-825, 1999

(15d) Lower bound: Factors predictive of long-term coronary heart disease mortality among 10,059 male Israeli civil servants and municipal employees (RR age 40+: 1.42) A 23 year mortality F/U in the Israeli Ischemic Heart Disease Study. Goldbourt U, et al., *Cardiology* 1993;82-100-121



Comparisons of Ratios 55	Ref: 1 90-95 Table	11 British Docs	3 1982 Reports App. C	7 Bragg 91	6 Keys 84	14 Farchi 87	8 Menotti 91	16 Other Clin	10 CN 86-92	13 CPS 1	Trend Line
1	3.24		2.3	2.23				2.05	2.96		2.40
0-10	2.5	2.89	2.08	1.73		1.38		2.93	2.72		2.25
10	2.27		1.88	1.81	1.74		1.31	2.05	2.58	2.22	2.05
10-20		2.35	1.68	1.64				1.56	2.29		1.87
20			1.49							2.01	1.68
20-30		1.545									1.50
30										2	1.34
30-40		1.26									1.20
40			1							1.39	1.10
40-50		0.98									1.04
50											1.00
50-60											
60											

References

1, 3,6-8, 10-11, 13

As noted above

16 Dur. 1 est. Reference 15a (RR 2.05)

Dur 0-10 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used.

Upper bound: Reference 15c (RR age 45-54: 3.93)

Lower bound: Reference 15e (RR 1.92)

Dur 10 (0-20) Several studies provided risk corresponding to this age and duration. An average of these values was used

Upper bound: Reference 15c (RR age 45-54: 2.57)

16(a) Lower bound: Health consequences of cigarettes and the internist's role in smoking cessation (20 yr FU, RR age 45-74: 1.52)

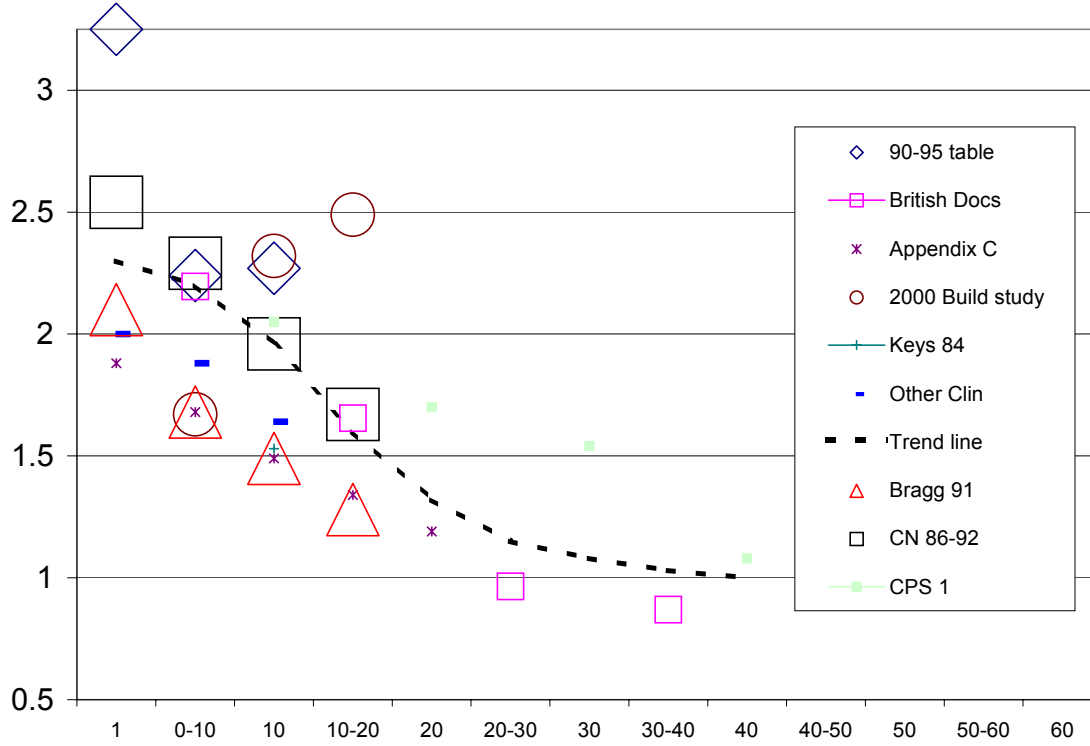
Stokes J. et al., Adv Intern Med 33:431, 1988

Dur 30 (1 Coronary disease mortality and risk factors in Black and White men (30 yr FU, RR age 35-74: 1.56)

Results from the combined Charleston SC and Evans county Heart Studies

Kelli JE, Arch Intern Med 1995; 155:1521-1527

Ratios of SM/NSM mortality: Males age 65

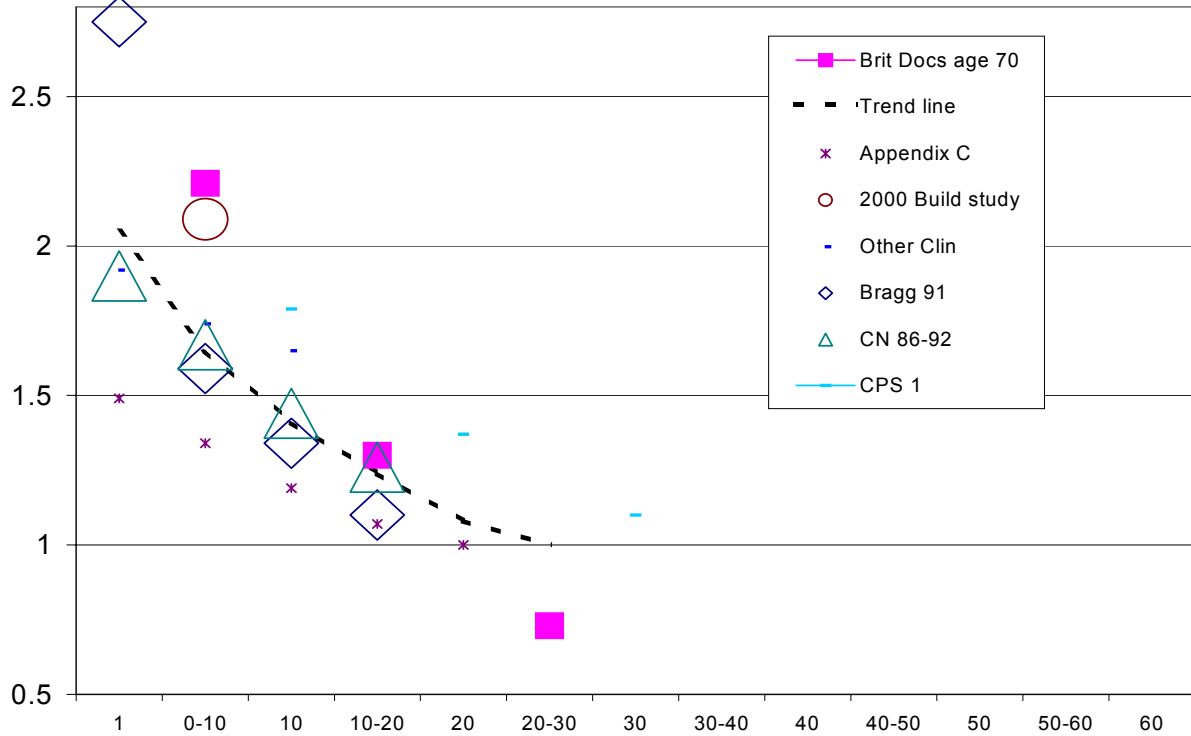


Comparisons of Ratios 65	Ref: 1 90-95 Table	11 British Docs	3 1982 Reports App. C	7 Bragg 91	6 Keys 84	17 Other Clin	10 CN 86-92	13 CPS 1	Trend Line
1	3.25		1.88	2.1		2.00	2.54		2.30
0-10	2.24	2.195	1.68	1.68		1.88	2.29		2.20
10	2.27		1.49	1.49	1.53	1.64	1.96	2.05	1.96
10-20		1.655	1.34	1.28			1.67		1.60
20			1.19					1.7	1.32
20-30		0.965							1.15
30								1.54	1.08
30-40		0.87							1.03
40								1.08	1.00
40-50									
50									
50-60									
60									

References

- 1, 3, 6-7, 10-11, 13 As noted above
- 17 Dur 1 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
- 17(a) Upper bound: Smoking and mortality among older men and women in 3 communities (5 yer FU, RR age 65-69: 2:3)
La Croix AZ, et al., NEJM 1991; 324:1619-25
- Lower bound: Reference 15a (22 month FU, RR age 60-69: 1.69 at 10-19cigs/day)
- Dur 0-10 Several studies provided risk estimates corresponding to this age and Duration. An average of these values was used
Upper bound: Reference 15c (RR age 55-64: 2.05)
Lower bound: Reference 15e (RR 1.7)
- Dur 10 (0-20) Several studies provided risk estimates corresponding to this age and Duration. An average of these values was used.
Upper bound: Reference 15c (RR age 55-64: 1.88)
- 17(b) Lower bound: Factors associated with survival to 75 years of age in middle aged men and women (Study designed to estimate risk at 20 years and attained age 75+, RR 1.39).
Goldberg RJ, Arch Intern Med 1996; 156:505-09

Ratios of SM/NSM mortality: Males age 75



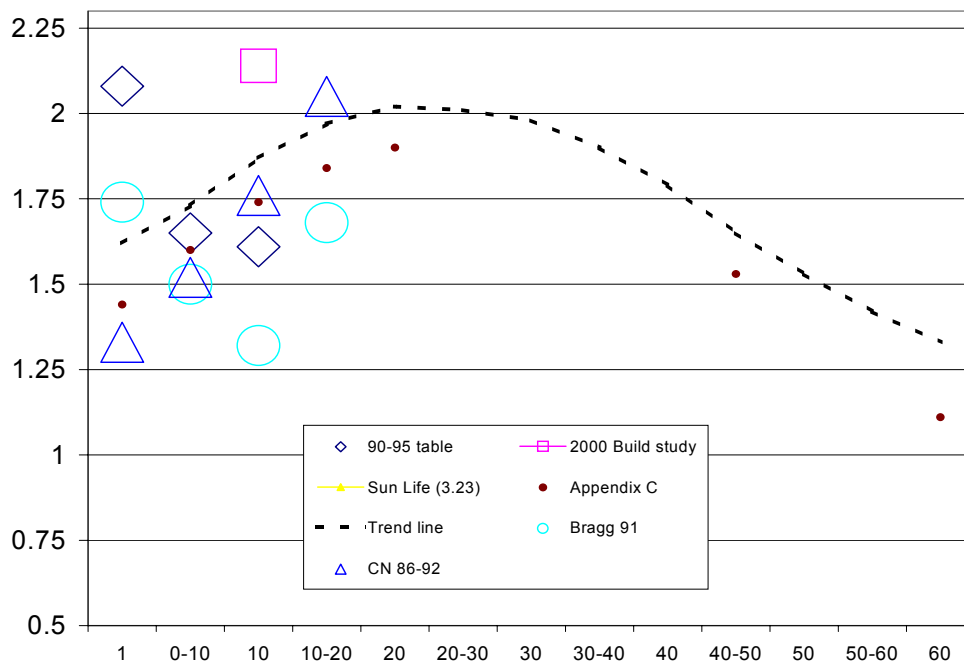
Comparisons of Ratios 75	11 British Docs Age 70	3 Appendix C	7 Bragg 91	18 Other Clin	10 CN 86-92	13 CPS 1	Trend Line
1		1.49	2.75	1.92	1.9		2.05
0-10	2.21	1.34	1.59	1.74	1.67		1.65
10		1.19	1.34	1.65	1.44	1.79	1.41
10-20	1.3	1.07	1.1		1.26		1.24
20		1				1.37	1.08
20-30	0.73						1.00
30						1.1	
30-40							
40							
40-50							
50							
50-60							
60							

References

3, 7, 10-11, 13 As noted above

- 18 Dur 1 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
Upper bound: Reference 17a (5yr FU, RR [averaged] age 70-74 And 75+: 2:35)
Lower bound: Reference 15a (22month FU, RR age 70-79: 1.50 at 10-19 cigs/day)
- Dur 0-10 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used.
Upper bound: Reference 15c (RR age 65-74: 1.9)
Lower bound: Reference 15e (RR 1.57)
- Dur 10 (0-20) Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
Upper bound: Reference 15c (RR age 65-74: 2.0)
Lower bound: Reference 12 (age 65-74, 16 yr FU; RR 1.57)

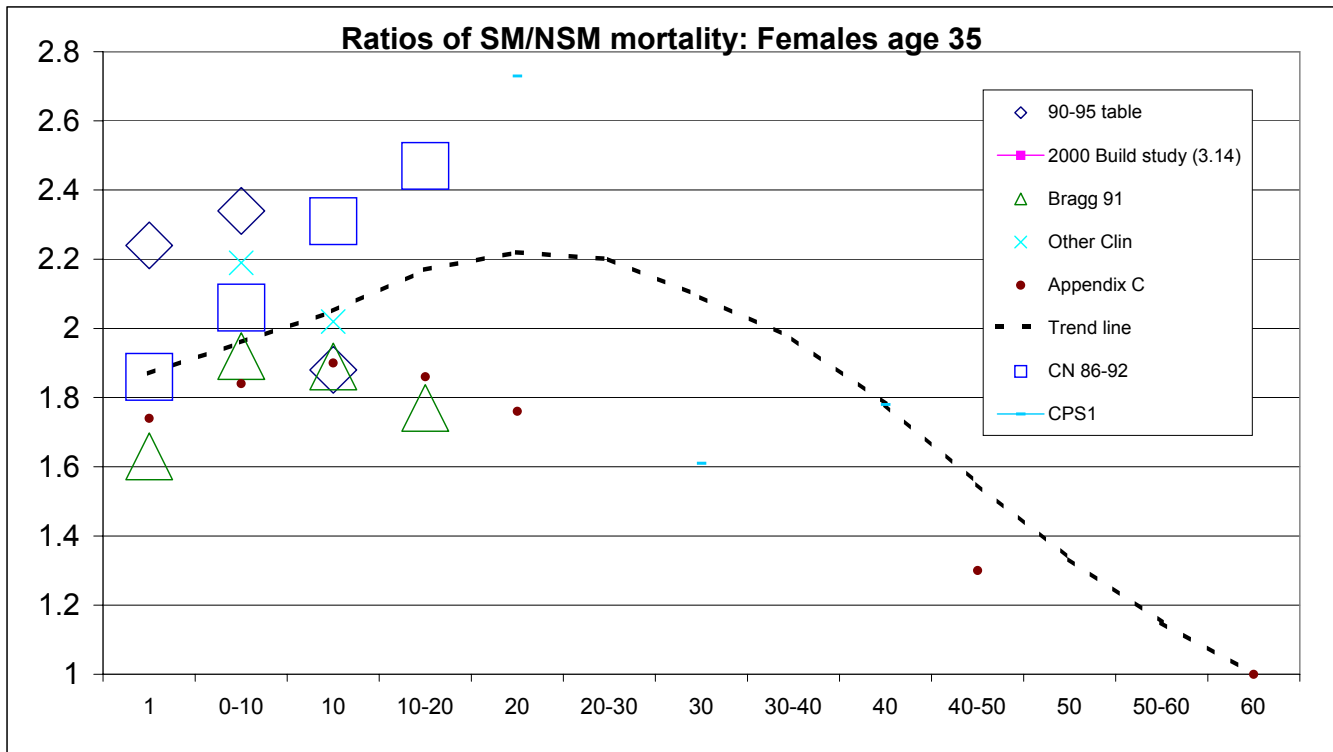
Ratios of SM/NSM mortality: Females age 25



Comparisons of Ratios of Ratios 25	Ref: 1 90-95 Table	2 Sun Life	7 Bragg 91	3 1982 Reports App. C	10 CN 86-92	Trend Line
1	2.08	3.23	1.74	1.44	1.33	1.62
0-10	1.65		1.5	1.6	1.52	1.73
10	1.61		1.32	1.74	1.76	1.87
10-20			1.68	1.84	2.05	1.97
20				1.9		2.02
20-30						2.01
30						1.98
30-40						1.90
40						1.79
40-50				1.53		1.65
50						1.53
50-60						1.42
60				1.11		1.33

References

1-3, 7, 10 As noted for males



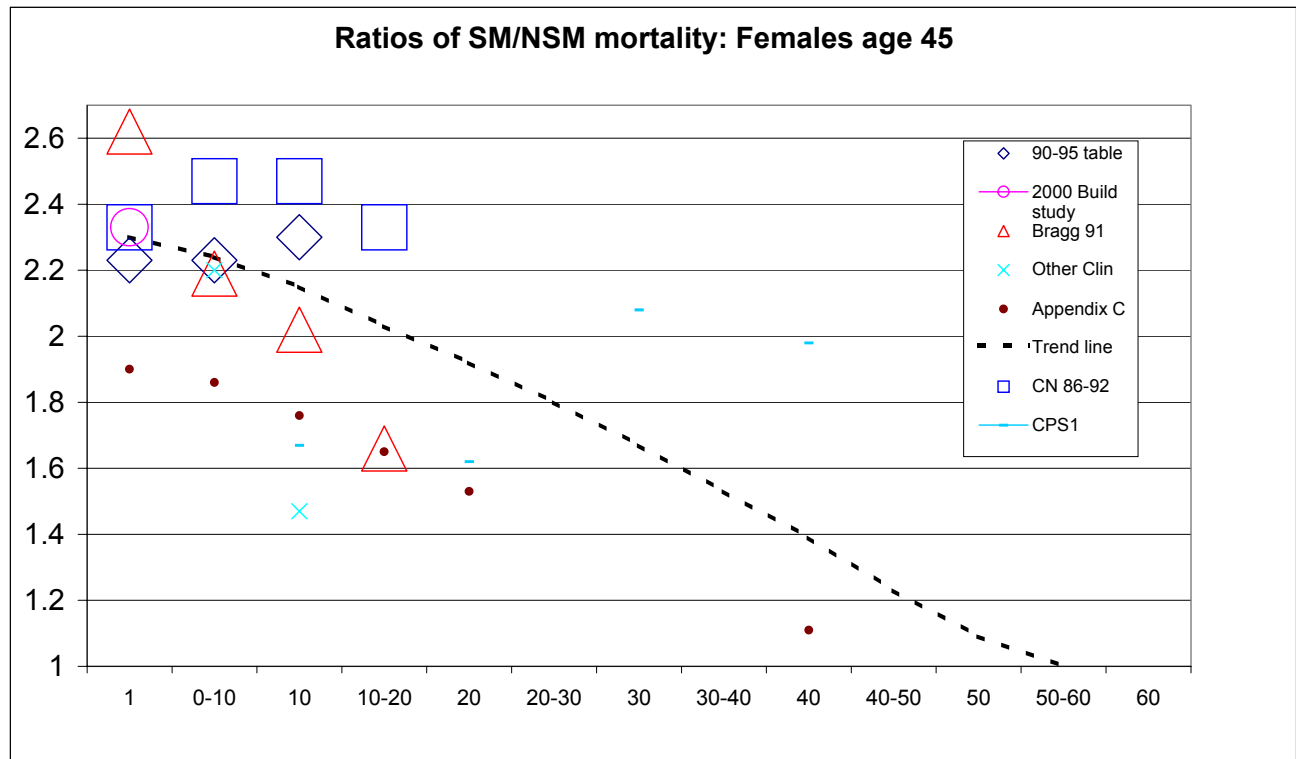
Comparisons of Ratios 35	Ref: 1 90-95 Table	7 Bragg 91	19 Other Clin	3 Appendix C	10 CN 86-92	13 CPSI	Trend Line
1	2.24	1.63		1.74	1.86		1.87
0-10	2.34	1.92	2.19	1.84	2.06		1.96
10	1.88	1.89	2.02	1.9	2.31		2.05
10-20		1.77		1.86	2.47		2.17
20				1.76		2.73	2.22
20-30							2.20
30						1.61	2.09
30-40						1.78	1.97
40						1.78	1.78
40-50				1.3			1.55
50							1.33
50-60							1.15
60				1			1.00

References

1, 3, 7, 10, 13

As noted for males

19 Reference 15c



Comparisons of Ratios 45	Ref: 1 90-95 Table	7 Bragg 91	20 Other Clin	3 1982 Reports App. C	10 CN 86-92	13 CPSI	Trend Line
1	2.23	2.62		1.9	2.33		2.30
0-10	2.23	2.19	2.2	1.86	2.47		2.24
10	2.3	2.02	1.47	1.76	2.47	1.67	2.15
10-20		1.66		1.65	2.33		2.03
20				1.53		1.62	1.92
20-30							1.80
30						2.08	1.67
30-40							1.53
40				1.11		1.98	1.39
40-50							1.23
50							1.09
50-60							1.00
60							

References

1, 3, 7, 10, 13

As noted for males

20 Dur 0-10 (20a)

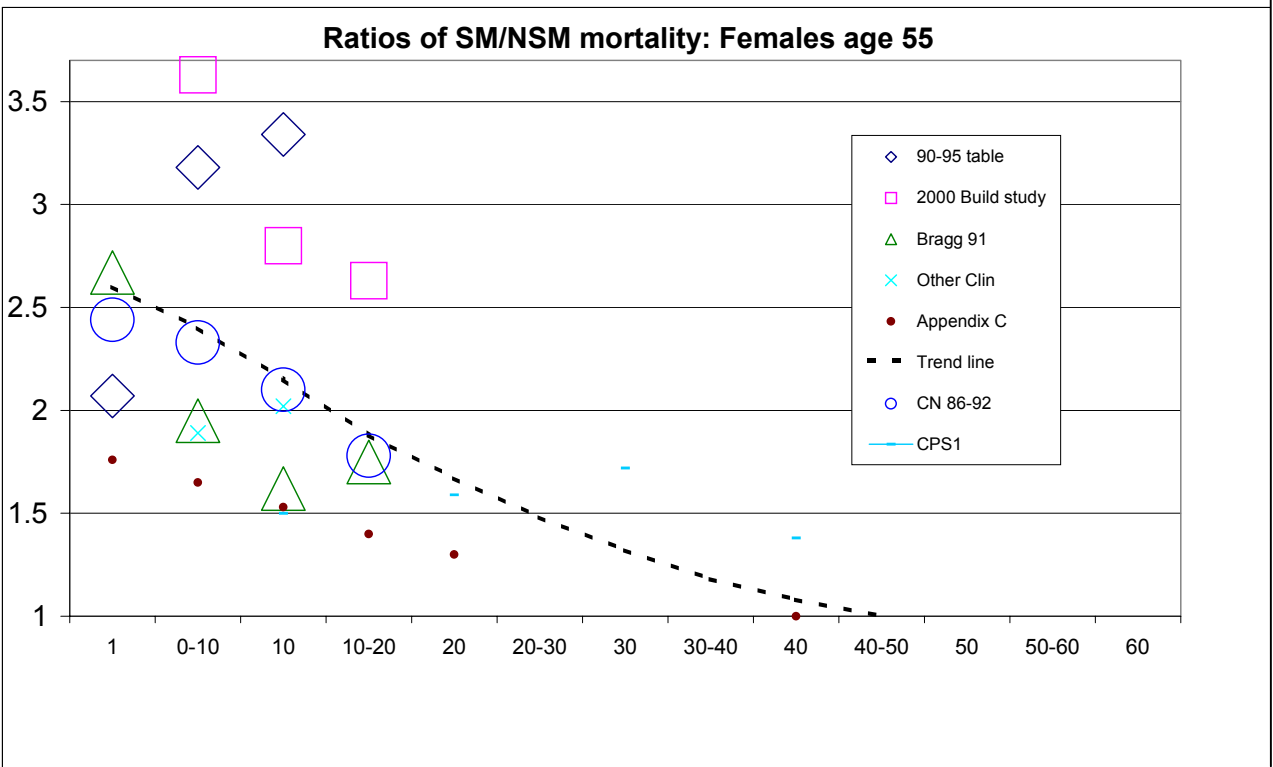
Mortality in middle-aged smokers and nonsmokers
(11yr FU, age 35-54)
Friedman CD, et al, NEJM 300:213-217, 1979

Dur 10 (0-20)

Several studies provided risk estimates corresponding to this age and duration. An average of these values was used

(20b)

Upper bound: Impact of multiple risk factor profiles on determining cardiovascular disease risk (age 25-75, @20 yr FU, RR 1.6)
Yusuf HR, et al, Preventive Med 27, 1-9 1998
Lower bound: Reference 15c (RR age 35-44: 1.34)



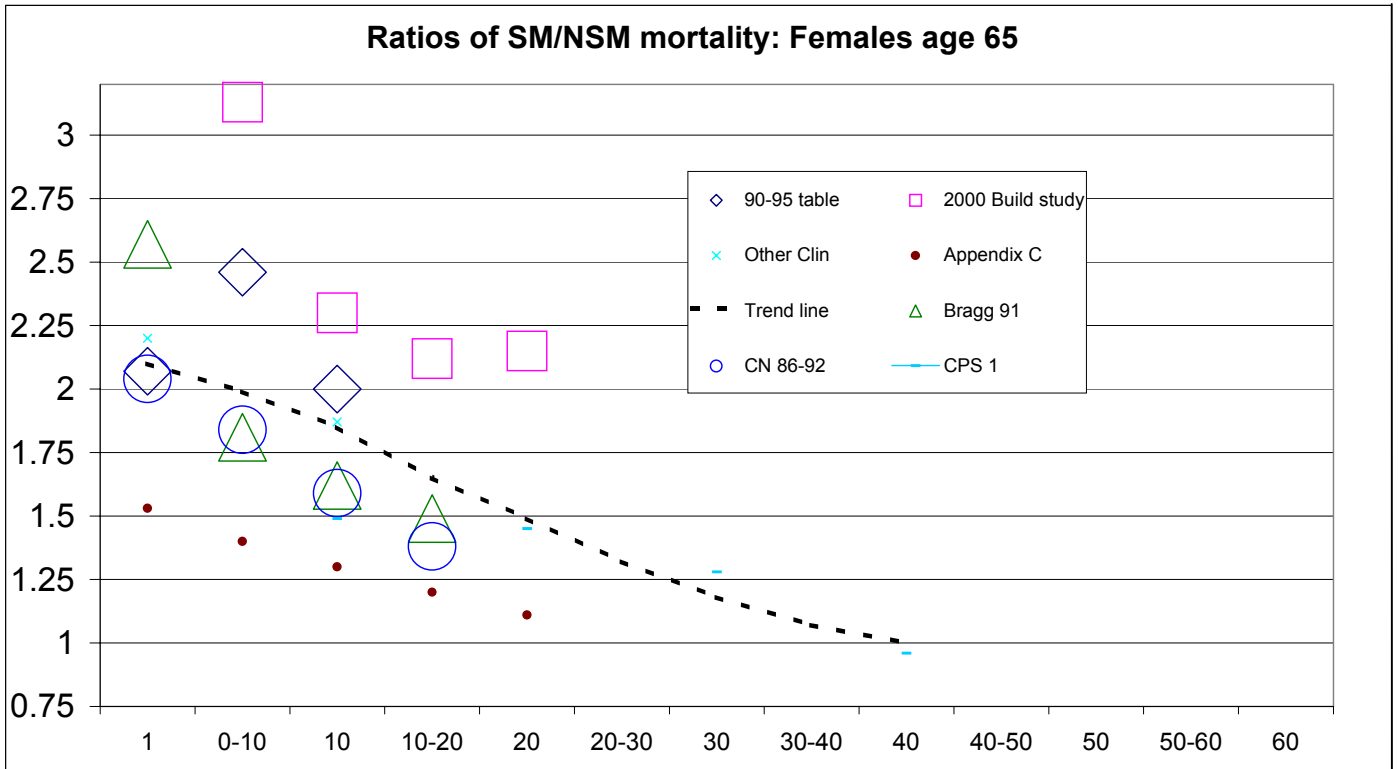
Comparisons of Ratios 55	Ref: 1 90-95 Table	7 Bragg 91	21 Other Clin	3 Appendix C	10 CN 86-92	13 CPS1	Trend Line
1	2.07	2.67		1.76	2.44		2.60
0-10	3.18	1.95	1.89	1.65	2.33		2.40
10	3.34	1.62	2.02	1.53	2.1	1.5	2.15
10-20		1.75		1.4	1.78		1.88
20				1.3		1.59	1.67
20-30							1.48
30						1.72	1.32
30-40							1.18
40				1		1.38	1.08
40-50							1.00
50							
50-60							
60							

References

1, 3, 7, 10, 13

As noted for males

- 21 Dur 0-10 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
Upper bound: Reference 15c (RR age 45-54: 2.07)
- 21(a) Lower bound: Classical risk factors and their impact on incident non-fatal and fatal myocardial infarction and all-cause mortality in southern Germany (age 45-64, 8yr FU, RR 1.7) Results from the MONICA Augsburg cohort study 1984-92
Keil U, Eur heart J 1998; 19: 1197-1207
- Dur 10 (0-20) Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
Upper bound: Reference 15c (RR age 45-54: 2.41)
Lower bound: Reference 16a (RR age 45-74: 1.62)



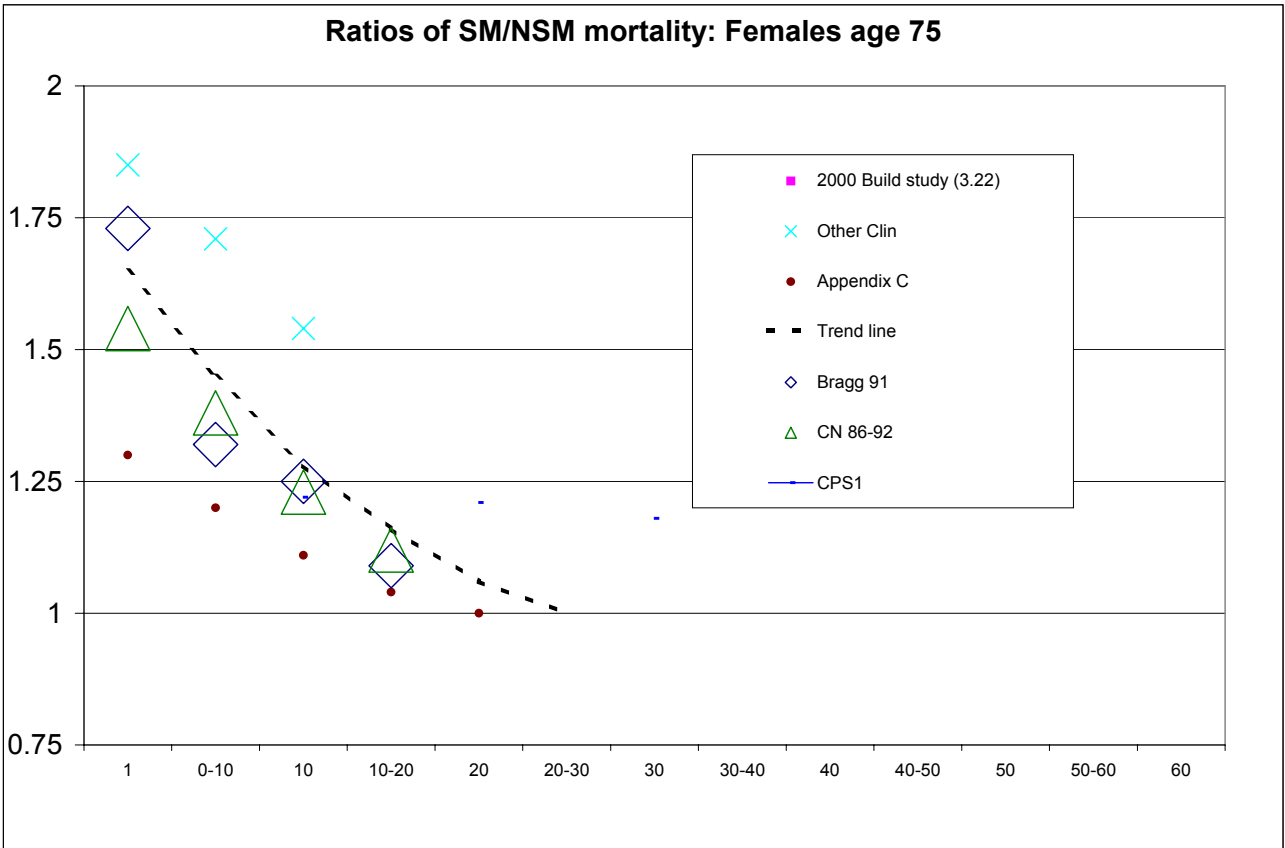
Comparisons of Ratios 65	Ref: 1 90-95 Table	7 Bragg 91	22 Other Clin	3 Appendix C	10 CN 86-92	13 CPSI	Trend Line
1	2.07	2.57	2.2	1.53	2.04		2.10
0-10	2.46	1.81		1.4	1.84		1.99
10	2	1.62	1.87	1.3	1.59	1.49	1.85
10-20		1.49		1.2	1.38		1.65
20				1.11		1.45	1.49
20-30							1.32
30						1.28	1.18
30-40							1.07
40						0.96	1.00
40-50							
50							
50-60							
60							

References

1, 3, 7, 10, 13

As noted for males

- 22 Dur 1 Several studies provided risk estimates corresponding to this age and duration. An average of these values was used.
- (22a) Upper bound: Excess mortality among cigarette smokers: Changes in a 20 yr interval (age 45+. FU of 6 years, RR 1.9)
Thun MJ, et al, Am J Pub Health 1995; 85:1223-1230
- (22b) Lower bound: Smoking and mortality among older women: the study of osteoporotic fractures (age 65-69, FU 4.9 yrs, RR 2.5)
Vogt MT, et al, Arch Intern Med. 1996; 156:630-636
- Dur 10 (0-20) Several studies provided risk estimates corresponding to this age and duration. An average of these values was used
- Upper bound: Reference 15c (RR age 55-64: 2.15)
- Lower bound: Reference 17b (RR attained age 75+: 1.58)



Comparisons of Ratios 75	7 Bragg 91	23 Other Clin	3 Appendix C	10 CN 86-92	13 CPSI	Trend Line
1	1.73	1.85	1.3	1.54		1.65
0-10	1.32	1.71	1.2	1.38		1.45
10	1.25	1.54	1.11	1.23	1.22	1.28
10-20	1.09		1.04	1.12		1.16
20			1		1.21	1.06
20-30						1.00
30					1.18	
30-40						
40						
40-50						
50						
50-60						
60						

References

1, 3, 7, 10, 13

As noted for males

23 Dur 1

Reference 22b (RR {average of 70-74 and 75+}: 1.85)

Dur 0-10

Reference 15c (RR age 65-74: 1.71)

Dur 0-20

Reference 15c (RR age 65-74: 1.54)

The final piece is to establish the prevalence rate estimates. These prevalence estimates, derived from two different sources of data, indicate a decline in smoking with age and duration. The rate of decline in the insurance data is somewhat flatter than what was projected for the general population. Prevalence estimates from the 90-95 table in the early durations are lower than what was postulated for an insured cohort from Pechmann's data. Trending of the 1990-95 data resulted in lower late duration smoking prevalence estimates in middle aged and elderly females compared to the similar aged males.

The final estimates were computed into a 25 year select and ultimate format. A summary of these estimates are displayed below.

Males – Smoking Prevalence

Age	Dur 1	Dur 5	Dur 10	Dur 15	Dur 20	Dur 25
25	14.4%	14.3%	14.1%	14.0%	13.9%	13.8%
35	13.7%	13.4%	13.2%	13.0%	12.8%	12.6%
45	12.9%	12.6%	12.3%	12.0%	11.7%	11.4%
55	12.2%	11.8%	11.4%	11.0%	10.6%	10.2%
65	11.5%	11.0%	10.5%	10.0%	9.5%	9.0%

Females – Smoking Prevalence

Age	Dur 1	Dur 5	Dur 10	Dur 15	Dur 20	Dur 25
25	11.5%	11.5%	11.5%	11.4%	11.4%	11.1%
35	13.5%	12.8%	12.2%	11.7%	10.5%	9.7%
45	15.5%	14.2%	12.9%	10.7%	9.6%	8.3%
55	17.6%	15.1%	12.5%	10.3%	8.7%	6.9%
65	15.5%	13.7%	11.8%	10.0%	7.8%	5.6%

Finally, given the underlying Valuation Basic Table, the relative risk estimates and the prevalence estimates, complete nonsmoker and smoker tables for both males and females are presented in Appendix III.

W:\sep01\lha\soa-AppB

**Female Composite 2001CSO Basic Table
to Female Aggregate 1998 US White Female**

Issue Age	1	2	3	4	5	6	7	8	9	10	11	12	13
0	8%	64%	68%	62%	71%	80%	86%	108%	108%	117%	136%	133%	143%
1	64%	68%	57%	71%	80%	86%	108%	108%	117%	127%	133%	143%	111%
2	68%	57%	71%	80%	86%	92%	108%	117%	127%	117%	129%	105%	96%
3	57%	71%	80%	86%	92%	92%	117%	127%	117%	121%	95%	92%	82%
4	71%	80%	86%	92%	92%	100%	127%	117%	114%	95%	92%	79%	73%
5	80%	86%	92%	92%	100%	109%	117%	107%	95%	85%	79%	70%	68%
6	86%	92%	92%	100%	109%	108%	107%	95%	85%	79%	70%	68%	71%
7	92%	92%	100%	109%	100%	107%	89%	85%	79%	70%	66%	69%	75%
8	92%	100%	109%	100%	93%	89%	77%	76%	68%	66%	69%	73%	81%
9	100%	109%	100%	93%	79%	77%	76%	68%	64%	67%	73%	79%	85%
10	109%	100%	93%	79%	69%	73%	65%	64%	64%	70%	76%	83%	90%
11	100%	93%	79%	69%	73%	63%	61%	64%	68%	76%	80%	88%	90%
12	93%	79%	69%	73%	63%	59%	62%	66%	74%	78%	85%	88%	90%
13	79%	69%	73%	63%	59%	60%	64%	71%	76%	83%	85%	88%	89%
14	69%	73%	63%	59%	58%	61%	69%	73%	80%	80%	86%	86%	89%
15	73%	63%	59%	58%	61%	67%	71%	75%	78%	81%	84%	87%	90%
16	63%	59%	58%	59%	64%	68%	73%	76%	79%	80%	83%	88%	88%
17	59%	58%	59%	62%	66%	70%	73%	76%	77%	80%	83%	86%	89%
18	56%	57%	60%	63%	68%	68%	71%	75%	78%	81%	84%	87%	89%
19	55%	57%	61%	65%	66%	69%	70%	74%	79%	80%	85%	88%	90%
20	52%	56%	60%	61%	64%	68%	72%	75%	78%	81%	86%	89%	89%
21	49%	53%	56%	60%	64%	67%	73%	75%	80%	82%	85%	86%	86%
22	45%	49%	55%	59%	63%	69%	73%	76%	81%	84%	85%	85%	84%
23	39%	45%	50%	57%	63%	67%	72%	77%	80%	82%	82%	82%	81%
24	36%	43%	50%	56%	61%	67%	72%	75%	79%	79%	80%	79%	80%
25	32%	41%	48%	55%	61%	67%	72%	74%	76%	76%	77%	76%	77%
26	30%	40%	47%	54%	60%	66%	70%	71%	72%	73%	74%	74%	76%
27	31%	39%	46%	53%	59%	64%	65%	67%	69%	70%	71%	72%	73%
28	31%	39%	46%	52%	56%	60%	62%	64%	66%	67%	69%	70%	72%
29	31%	40%	46%	50%	54%	57%	58%	61%	63%	65%	67%	69%	70%
30	33%	39%	44%	49%	51%	53%	56%	58%	61%	63%	65%	67%	70%
31	34%	39%	43%	46%	49%	52%	54%	57%	59%	62%	64%	67%	71%
32	33%	38%	41%	44%	46%	50%	53%	56%	59%	62%	65%	69%	72%
33	32%	35%	38%	42%	46%	50%	53%	56%	59%	63%	67%	71%	75%
34	29%	33%	37%	41%	45%	49%	52%	57%	60%	65%	69%	73%	77%
35	27%	31%	35%	40%	44%	49%	54%	58%	63%	67%	72%	76%	79%
36	25%	30%	35%	40%	44%	49%	55%	60%	65%	69%	74%	77%	80%
37	24%	29%	34%	40%	45%	51%	56%	62%	67%	72%	76%	79%	81%
38	23%	29%	34%	40%	46%	52%	57%	63%	69%	73%	76%	79%	81%
39	23%	29%	34%	41%	47%	53%	59%	65%	69%	74%	77%	79%	81%
40	24%	30%	36%	43%	49%	55%	61%	66%	70%	73%	76%	79%	82%
41	25%	31%	38%	44%	51%	57%	62%	66%	70%	74%	76%	79%	82%
42	26%	34%	40%	47%	53%	58%	63%	67%	70%	74%	77%	80%	83%
43	28%	35%	42%	49%	55%	60%	64%	68%	71%	74%	77%	80%	82%
44	30%	37%	45%	51%	56%	61%	65%	68%	72%	75%	78%	80%	82%
45	32%	39%	46%	52%	57%	62%	65%	69%	72%	75%	78%	79%	81%
46	33%	41%	48%	53%	58%	62%	66%	70%	73%	75%	77%	79%	80%
47	34%	42%	48%	53%	58%	63%	66%	70%	73%	75%	76%	78%	80%
48	35%	42%	48%	54%	58%	63%	66%	69%	72%	73%	75%	77%	78%
49	33%	40%	48%	53%	58%	62%	65%	68%	70%	72%	74%	75%	76%
50	32%	41%	48%	52%	57%	60%	63%	66%	68%	70%	72%	73%	75%
51	30%	42%	47%	51%	55%	58%	61%	63%	66%	68%	70%	71%	73%
52	29%	42%	47%	50%	53%	56%	58%	61%	64%	66%	68%	70%	72%
53	28%	41%	46%	48%	51%	53%	56%	59%	61%	63%	66%	68%	71%
54	27%	40%	44%	46%	49%	51%	54%	56%	59%	61%	64%	68%	71%
55	26%	39%	43%	45%	47%	49%	52%	54%	57%	60%	64%	67%	70%
56	25%	38%	42%	44%	45%	47%	50%	53%	56%	59%	63%	66%	69%
57	24%	36%	41%	42%	44%	46%	49%	52%	55%	59%	62%	65%	68%
58	22%	35%	40%	41%	43%	45%	48%	52%	55%	59%	62%	65%	68%
59	22%	34%	39%	40%	42%	45%	48%	52%	55%	58%	61%	64%	68%
60	20%	32%	38%	39%	42%	45%	48%	52%	55%	58%	61%	65%	69%
61	19%	30%	36%	38%	41%	44%	48%	51%	54%	58%	62%	66%	70%
62	18%	29%	35%	37%	40%	44%	47%	50%	54%	58%	62%	66%	71%
63	19%	28%	34%	36%	39%	42%	46%	49%	54%	58%	63%	67%	72%
64	19%	32%	33%	35%	37%	41%	45%	49%	54%	59%	64%	69%	73%
65	20%	31%	31%	33%	36%	39%	44%	49%	54%	59%	65%	70%	74%
66	19%	31%	30%	32%	34%	38%	43%	49%	54%	60%	66%	71%	75%
67	18%	29%	29%	30%	34%	38%	43%	49%	55%	61%	66%	71%	75%
68	18%	28%	28%	30%	33%	38%	43%	49%	55%	61%	66%	71%	74%
69	18%	28%	28%	30%	33%	38%	44%	50%	56%	62%	66%	70%	74%
70	19%	27%	27%	30%	34%	39%	45%	51%	57%	62%	66%	70%	74%
71	19%	27%	27%	30%	35%	40%	46%	51%	57%	62%	66%	70%	73%
72	27%	26%	28%	31%	36%	41%	47%	52%	57%	62%	66%	70%	73%
73	26%	26%	28%	32%	37%	42%	47%	52%	57%	62%	66%	69%	73%
74	26%	26%	29%	33%	38%	43%	48%	53%	58%	62%	66%	69%	72%
75	26%	27%	30%	34%	38%	43%	48%	53%	58%	62%	66%	70%	71%
76	26%	28%	31%	35%	39%	44%	49%	54%	58%	62%	66%	70%	71%
77	27%	29%	32%	36%	40%	45%	50%	54%	59%	63%	67%	70%	71%
78	28%	30%	33%	37%	42%	46%	50%	55%	59%	63%	67%	71%	71%
79	26%	31%	35%	39%	43%	47%	51%	56%	60%	64%	68%	71%	71%
80	26%	33%	37%	40%	44%	48%	53%	57%	61%	65%	68%	71%	71%
81	26%	36%	38%	42%	46%	50%	54%	58%	61%	65%	69%	71%	72%
82	26%	38%	40%	44%	47%	51%	55%	59%	62%	66%	69%	72%	72%
83	26%	40%	43%	46%	49%	52%	56%	60%	63%	66%	70%	72%	73%
84	29%	43%	45%	48%	51%	54%	57%	61%	64%	67%	70%	73%	74%
85	31%	45%	48%	50%	53%	55%	58%	61%	65%	68%	71%	74%	75%
86	37%	48%	50%	52%	54%	57%	60%	62%	65%	68%	71%	74%	77%
87	39%	50%	52%	54%	56%	58%	61%	63%	66%	69%	72%	74%	77%
88	45%	52%	54%	56%	58%	60%	62%	64%	67%	69%	72%	75%	24%
89	50%	54%	56%	58%	59%	61%	63%	65%	67%	70%	73%	23%	
90	54%	56%	58%	59%	61%	62%	64%	66%	68%	71%	22%		
91	56%	58%	59%	61%	62%	63%	65%	67%	69%	22%			
92	58%	59%	61%	62%	63%	64%	66%	68%	21%				
93	59%	61%	62%	63%	64%	66%	67%	21%					
94	61%	62%	63%	64%	66%	67%	21%						
95	62%	63%	64%	66%	67%	21%							
96	63%	64%	66%	67%	21%								
97	64%	66%	67%	21%									
98	66%	67%	21%										

Female Composite 2001CSO Basic Table
to Female Aggregate 1998 US White Female

Issue Age		
99	67%	21%

Duration

Female Co
to Female

Issue Age	14	15	16	17	18	19	20	21	22	23	24	25	Ultimate	Att. Age
0	121%	100%	85%	78%	75%	78%	84%	90%	95%	100%	98%	98%	95%	25
1	96%	85%	75%	73%	76%	82%	90%	95%	100%	98%	98%	95%	96%	26
2	82%	73%	73%	76%	82%	88%	95%	100%	98%	98%	95%	96%	98%	27
3	73%	70%	73%	80%	88%	93%	98%	98%	98%	95%	96%	96%	96%	28
4	70%	73%	77%	86%	93%	98%	98%	98%	95%	96%	98%	96%	96%	29
5	71%	77%	86%	90%	98%	98%	98%	95%	96%	98%	96%	96%	93%	30
6	75%	83%	90%	95%	98%	98%	95%	96%	98%	96%	96%	93%	93%	31
7	81%	88%	95%	95%	98%	95%	96%	98%	96%	96%	93%	93%	91%	32
8	85%	93%	95%	95%	95%	96%	98%	96%	96%	93%	93%	91%	89%	33
9	90%	93%	95%	95%	96%	96%	96%	96%	93%	93%	91%	89%	87%	34
10	90%	93%	93%	93%	96%	96%	96%	93%	93%	91%	89%	87%	88%	35
11	90%	93%	93%	94%	94%	96%	93%	93%	91%	89%	87%	88%	87%	36
12	91%	91%	94%	94%	94%	93%	93%	91%	89%	87%	88%	87%	88%	37
13	91%	92%	94%	94%	93%	93%	91%	89%	87%	88%	87%	87%	86%	38
14	92%	92%	94%	93%	93%	91%	89%	87%	88%	87%	86%	85%	84%	39
15	90%	93%	93%	93%	91%	89%	87%	88%	87%	86%	85%	84%	82%	40
16	91%	93%	93%	91%	89%	87%	88%	87%	86%	85%	84%	82%	81%	41
17	91%	93%	91%	89%	87%	88%	87%	86%	85%	84%	82%	81%	81%	42
18	92%	91%	89%	87%	88%	87%	86%	85%	84%	82%	81%	81%	81%	43
19	91%	89%	87%	88%	87%	86%	85%	84%	82%	81%	81%	81%	81%	44
20	89%	87%	87%	86%	86%	85%	84%	82%	81%	81%	81%	81%	83%	45
21	86%	85%	85%	84%	84%	83%	82%	81%	81%	81%	81%	83%	84%	46
22	84%	83%	83%	83%	83%	81%	81%	81%	81%	81%	83%	84%	86%	47
23	82%	81%	81%	81%	81%	81%	81%	81%	81%	83%	84%	86%	87%	48
24	79%	79%	80%	79%	79%	80%	81%	81%	83%	84%	86%	87%	88%	49
25	78%	77%	78%	78%	78%	80%	81%	83%	84%	86%	87%	88%	89%	50
26	76%	76%	76%	78%	79%	81%	83%	84%	86%	87%	88%	89%	89%	51
27	74%	75%	76%	78%	80%	82%	84%	86%	87%	88%	89%	89%	91%	52
28	72%	74%	77%	78%	81%	84%	85%	87%	88%	89%	89%	91%	92%	53
29	72%	75%	77%	81%	83%	85%	86%	88%	89%	89%	91%	92%	93%	54
30	73%	76%	79%	82%	85%	86%	87%	89%	89%	91%	92%	93%	94%	55
31	74%	78%	81%	84%	86%	87%	88%	89%	91%	92%	93%	94%	94%	56
32	76%	80%	83%	85%	86%	88%	89%	90%	92%	93%	94%	94%	94%	57
33	78%	82%	84%	85%	87%	88%	90%	92%	93%	94%	94%	94%	94%	58
34	80%	83%	85%	86%	87%	89%	91%	92%	93%	93%	93%	93%	93%	59
35	82%	83%	85%	87%	89%	90%	92%	93%	93%	93%	93%	92%	92%	60
36	82%	84%	86%	88%	90%	91%	92%	92%	92%	92%	92%	91%	90%	61
37	83%	85%	87%	89%	90%	91%	91%	91%	91%	91%	91%	89%	88%	62
38	83%	85%	88%	89%	90%	91%	91%	91%	91%	90%	89%	88%	87%	63
39	84%	86%	88%	89%	90%	90%	90%	90%	89%	88%	87%	86%	86%	64
40	84%	87%	88%	89%	89%	89%	90%	89%	88%	87%	86%	86%	86%	65
41	85%	86%	87%	88%	89%	89%	89%	88%	87%	86%	86%	86%	85%	66
42	85%	86%	87%	87%	88%	88%	88%	87%	86%	86%	86%	85%	85%	67
43	84%	85%	86%	87%	87%	87%	87%	86%	86%	86%	85%	85%	84%	68
44	83%	84%	86%	86%	86%	86%	86%	86%	85%	85%	84%	82%	82%	69
45	83%	84%	85%	85%	85%	86%	86%	86%	85%	85%	84%	82%	81%	70
46	82%	83%	83%	84%	84%	85%	86%	85%	85%	84%	82%	81%	82%	71
47	81%	81%	82%	83%	84%	85%	85%	85%	84%	82%	81%	82%	82%	72
48	79%	80%	81%	82%	84%	85%	85%	84%	82%	81%	82%	82%	82%	73
49	78%	79%	80%	82%	84%	85%	84%	82%	81%	82%	82%	82%	83%	74
50	76%	78%	80%	82%	83%	84%	82%	81%	82%	82%	82%	83%	83%	75
51	75%	78%	80%	82%	82%	82%	81%	82%	82%	82%	83%	83%	84%	76
52	75%	77%	79%	81%	81%	81%	82%	82%	82%	83%	83%	84%	83%	77
53	74%	77%	78%	79%	81%	82%	82%	82%	83%	83%	84%	83%	83%	78
54	74%	76%	77%	79%	81%	82%	82%	83%	83%	84%	83%	83%	81%	79
55	72%	74%	77%	79%	81%	82%	83%	83%	84%	83%	83%	81%	80%	80
56	71%	74%	77%	80%	82%	83%	83%	84%	83%	83%	81%	80%	80%	81
57	71%	74%	77%	80%	83%	83%	84%	83%	83%	81%	80%	78%	81%	82
58	71%	75%	78%	81%	83%	84%	83%	83%	81%	80%	78%	77%	80%	83
59	72%	75%	79%	83%	84%	83%	83%	81%	80%	78%	77%	75%	79%	84
60	72%	76%	80%	84%	83%	83%	81%	80%	78%	77%	75%	74%	79%	85
61	73%	78%	81%	83%	83%	81%	80%	78%	77%	75%	74%	73%	77%	86
62	75%	79%	83%	83%	81%	80%	78%	77%	75%	74%	73%	72%	79%	87
63	76%	80%	83%	81%	80%	78%	77%	75%	74%	73%	72%	71%	80%	88
64	78%	81%	81%	80%	78%	77%	75%	74%	73%	72%	71%	71%	80%	89
65	78%	81%	80%	78%	77%	75%	74%	73%	72%	71%	71%	71%	80%	90
66	78%	80%	78%	77%	75%	74%	73%	72%	71%	71%	71%	71%	75%	91
67	78%	78%	77%	75%	74%	73%	72%	71%	71%	71%	71%	71%	74%	92
68	77%	77%	75%	74%	73%	72%	71%	71%	71%	71%	71%	71%	76%	93
69	77%	75%	74%	73%	72%	71%	71%	71%	71%	71%	71%	72%	78%	94
70	75%	74%	73%	72%	71%	71%	71%	71%	71%	71%	72%	72%	82%	95
71	74%	73%	72%	71%	71%	71%	71%	71%	71%	72%	72%	73%	85%	96
72	73%	72%	71%	71%	71%	71%	71%	71%	72%	72%	73%	74%	87%	97
73	72%	71%	71%	71%	71%	71%	71%	72%	72%	73%	74%	75%	82%	98
74	71%	71%	71%	71%	71%	71%	72%	72%	73%	74%	75%	77%	80%	99
75	71%	71%	71%	71%	71%	71%	72%	72%	73%	74%	75%	77%	78%	100
76	71%	71%	71%	71%	72%	72%	73%	74%	75%	77%	78%	25%		101
77	71%	71%	71%	72%	72%	73%	74%	75%	77%	78%	25%			102
78	71%	71%	72%	72%	73%	74%	75%	77%	78%	25%				103
79	71%	72%	72%	73%	74%	75%	77%	78%	25%					104
80	72%	72%	73%	74%	75%	77%	78%	25%						105
81	72%	73%	74%	75%	77%	78%	25%							106
82	73%	74%	75%	77%	78%	25%								107
83	74%	75%	77%	78%	25%									108
84	75%	77%	78%	25%										109
85	77%	78%	25%											110
86	78%	25%												111
87	25%													112
88														113
89														114
90														115
91														116
92														117
93														118
94														119
95														120
96														121
97														122
98														123

Female Co
to Female

Issue Age
99

124

Ratio of Female Smoker to Female Nonsmoker Ratios

Issue Age	Duration												
	1	2	3	4	5	6	7	8	9	10	11	12	13
0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%
5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	110%
6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	110%	119%
7	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	110%	120%	125%
8	100%	100%	100%	100%	100%	100%	100%	100%	107%	110%	120%	126%	130%
9	100%	100%	100%	100%	100%	100%	100%	107%	111%	121%	126%	128%	139%
10	100%	100%	100%	100%	100%	100%	104%	111%	121%	127%	129%	137%	144%
11	100%	100%	100%	100%	100%	104%	111%	121%	124%	133%	139%	142%	149%
12	100%	100%	100%	100%	104%	112%	122%	125%	134%	140%	144%	147%	157%
13	100%	100%	100%	104%	112%	119%	126%	136%	138%	145%	148%	156%	161%
14	100%	100%	104%	112%	115%	127%	129%	139%	143%	148%	158%	163%	163%
15	100%	104%	112%	115%	127%	130%	136%	143%	150%	158%	162%	162%	169%
16	104%	112%	115%	128%	131%	137%	139%	148%	155%	162%	163%	168%	171%
17	112%	115%	128%	132%	135%	141%	150%	153%	165%	165%	168%	172%	173%
18	116%	129%	133%	136%	142%	144%	157%	161%	167%	167%	168%	174%	174%
19	126%	135%	138%	144%	146%	156%	162%	162%	169%	168%	174%	176%	180%
20	133%	136%	143%	150%	160%	164%	165%	165%	170%	171%	176%	178%	181%
21	137%	145%	150%	154%	162%	166%	167%	171%	173%	177%	177%	183%	182%
22	147%	147%	155%	162%	167%	165%	171%	174%	179%	179%	182%	184%	187%
23	153%	156%	157%	167%	168%	169%	172%	173%	178%	184%	183%	188%	187%
24	157%	161%	167%	168%	169%	176%	174%	179%	179%	185%	188%	187%	191%
25	162%	161%	171%	169%	177%	174%	180%	180%	184%	185%	188%	191%	190%
26	162%	161%	173%	170%	177%	176%	181%	185%	185%	189%	192%	191%	193%
27	164%	172%	174%	171%	179%	182%	181%	185%	187%	190%	192%	196%	195%
28	167%	174%	175%	179%	179%	182%	182%	186%	191%	193%	193%	196%	197%
29	169%	176%	173%	180%	186%	183%	189%	188%	191%	194%	196%	199%	200%
30	176%	177%	181%	181%	186%	186%	189%	192%	195%	194%	196%	199%	201%
31	179%	175%	182%	182%	187%	191%	190%	193%	195%	197%	199%	200%	203%
32	180%	183%	183%	188%	187%	191%	194%	196%	198%	200%	201%	203%	204%
33	181%	184%	183%	189%	193%	192%	193%	197%	200%	201%	202%	205%	206%

34	181%	188%	193%	189%	193%	196%	197%	199%	203%	203%	205%	207%	208%
35	181%	188%	194%	195%	198%	198%	198%	200%	203%	206%	207%	208%	211%
36	186%	189%	194%	195%	198%	198%	201%	204%	203%	205%	208%	208%	210%
37	195%	200%	200%	200%	200%	200%	203%	204%	206%	206%	208%	209%	209%
38	200%	200%	200%	200%	203%	206%	205%	207%	208%	207%	208%	209%	209%
39	209%	206%	205%	204%	206%	206%	207%	207%	208%	209%	210%	209%	209%
40	208%	206%	209%	211%	208%	210%	210%	209%	210%	210%	209%	209%	209%
41	214%	210%	212%	213%	211%	210%	211%	212%	211%	211%	210%	210%	209%
42	219%	218%	218%	217%	215%	215%	213%	213%	213%	212%	211%	210%	209%
43	222%	220%	218%	220%	217%	217%	215%	215%	214%	213%	211%	210%	209%
44	226%	227%	222%	222%	220%	218%	218%	216%	216%	214%	212%	210%	208%
45	232%	230%	228%	225%	223%	222%	220%	218%	217%	215%	213%	210%	208%
46	232%	232%	228%	227%	226%	222%	221%	219%	217%	215%	213%	210%	207%
47	237%	235%	230%	228%	226%	225%	221%	219%	218%	215%	212%	209%	207%
48	239%	237%	234%	231%	228%	226%	223%	220%	218%	215%	212%	209%	206%
49	241%	240%	235%	233%	230%	227%	224%	221%	218%	215%	212%	208%	205%
50	246%	243%	238%	235%	231%	229%	225%	222%	218%	215%	211%	208%	204%
51	246%	245%	240%	237%	233%	229%	226%	222%	219%	215%	211%	208%	204%
52	251%	246%	243%	239%	235%	231%	227%	223%	219%	215%	211%	207%	203%
53	254%	250%	246%	241%	236%	232%	228%	223%	219%	215%	211%	206%	202%
54	258%	252%	248%	243%	238%	233%	229%	224%	220%	215%	210%	206%	201%
55	258%	255%	251%	245%	240%	235%	230%	225%	220%	215%	210%	205%	201%
56	255%	250%	246%	240%	236%	231%	227%	222%	217%	212%	207%	203%	198%
57	250%	245%	241%	236%	232%	227%	223%	218%	214%	209%	204%	200%	195%
58	246%	241%	237%	232%	228%	223%	219%	215%	210%	206%	201%	197%	193%
59	239%	237%	232%	228%	223%	220%	215%	211%	207%	203%	199%	194%	190%
60	234%	231%	227%	224%	220%	216%	212%	208%	204%	200%	196%	192%	187%
61	229%	227%	223%	219%	216%	212%	208%	204%	201%	197%	193%	189%	185%
62	225%	221%	218%	215%	211%	208%	204%	201%	197%	194%	190%	186%	182%
63	220%	216%	214%	210%	207%	204%	201%	197%	194%	191%	187%	183%	179%
64	215%	212%	209%	206%	203%	200%	197%	194%	191%	188%	184%	180%	177%
65	210%	207%	204%	202%	199%	196%	193%	191%	188%	185%	181%	178%	174%
66	206%	202%	200%	197%	194%	191%	188%	185%	182%	179%	176%	172%	169%
67	201%	198%	195%	192%	189%	186%	183%	180%	177%	173%	170%	167%	164%
68	196%	193%	190%	187%	184%	181%	177%	174%	171%	168%	165%	162%	158%
69	193%	189%	185%	182%	179%	175%	172%	169%	165%	162%	159%	156%	153%
70	188%	184%	181%	177%	174%	170%	167%	163%	160%	157%	154%	151%	148%
71	183%	179%	176%	172%	169%	165%	162%	158%	154%	151%	148%	145%	142%
72	179%	175%	171%	167%	164%	160%	156%	153%	149%	145%	142%	140%	137%
73	174%	170%	166%	163%	158%	155%	151%	147%	143%	139%	137%	134%	136%
74	169%	165%	162%	157%	154%	150%	146%	142%	138%	134%	131%	129%	130%
75	165%	161%	157%	153%	149%	144%	140%	136%	132%	128%	126%	124%	119%

76	163%	159%	155%	151%	146%	143%	139%	135%	131%	127%	124%	118%	118%
77	160%	156%	152%	148%	145%	141%	137%	133%	129%	125%	123%	116%	112%
78	158%	154%	150%	146%	143%	139%	135%	131%	128%	124%	119%	112%	113%
79	155%	152%	148%	144%	141%	137%	133%	130%	126%	122%	116%	112%	112%
80	146%	149%	146%	142%	139%	135%	131%	128%	124%	121%	116%	111%	110%
81	145%	147%	144%	140%	137%	133%	130%	126%	123%	120%	114%	110%	109%
82	145%	145%	141%	138%	135%	131%	128%	125%	121%	118%	113%	109%	108%
83	144%	138%	139%	136%	133%	130%	126%	123%	120%	117%	111%	107%	105%
84	135%	137%	137%	134%	131%	128%	125%	121%	118%	115%	110%	105%	104%
85	136%	137%	132%	132%	129%	126%	123%	120%	117%	114%	109%	104%	102%
86	136%	130%	131%	130%	127%	126%	121%	118%	115%	113%	108%	104%	101%
87	127%	129%	129%	127%	128%	124%	119%	116%	114%	111%	107%	103%	101%
88	128%	129%	127%	127%	125%	121%	117%	115%	112%	110%	106%	102%	101%
89	129%	127%	127%	124%	122%	119%	116%	113%	111%	108%	105%	102%	100%
90	127%	126%	124%	122%	119%	117%	114%	112%	109%	107%	104%	101%	102%
91	126%	124%	122%	119%	117%	115%	113%	110%	108%	106%	103%	103%	101%
92	124%	121%	119%	117%	115%	114%	111%	108%	106%	104%	103%	101%	100%
93	121%	119%	117%	114%	113%	111%	109%	107%	105%	103%	101%	100%	100%
94	119%	117%	114%	113%	111%	109%	107%	105%	103%	101%	100%	100%	100%
95	116%	114%	113%	111%	109%	107%	105%	103%	102%	100%	100%	100%	100%
96	114%	112%	111%	109%	107%	105%	104%	102%	100%	100%	100%	100%	100%
97	112%	110%	108%	106%	105%	103%	102%	100%	100%	100%	100%	100%	100%
98	109%	108%	106%	104%	103%	102%	100%	100%	100%	100%	100%	100%	100%
99	107%	105%	104%	103%	101%	100%	100%	100%	100%	100%	100%	100%	100%

Duration										Duration			Attained
14	15	16	17	18	19	20	21	22	23	24	25 Ultimate	Age	
100%	100%	100%	106%	112%	121%	125%	133%	138%	142%	147%	154%	164%	25
100%	100%	107%	113%	121%	126%	133%	138%	142%	147%	155%	159%	166%	26
100%	107%	113%	121%	126%	131%	138%	142%	147%	155%	159%	168%	166%	27
107%	110%	119%	124%	131%	136%	143%	147%	155%	159%	168%	167%	171%	28
110%	119%	124%	132%	136%	143%	151%	155%	159%	168%	167%	171%	173%	29
119%	124%	132%	137%	143%	151%	155%	159%	168%	167%	171%	173%	176%	30
125%	133%	137%	142%	151%	155%	159%	165%	167%	169%	174%	175%	181%	31
130%	138%	142%	150%	155%	159%	165%	167%	169%	174%	175%	177%	182%	32
139%	143%	150%	157%	159%	165%	167%	169%	174%	175%	177%	183%	186%	33
144%	151%	157%	159%	165%	167%	169%	174%	175%	177%	183%	184%	186%	34
149%	156%	161%	167%	167%	169%	174%	175%	177%	183%	184%	186%	188%	35
157%	161%	167%	168%	168%	174%	175%	180%	181%	186%	185%	188%	192%	36
159%	166%	168%	168%	174%	175%	180%	181%	186%	185%	188%	189%	191%	37
166%	168%	168%	174%	175%	180%	181%	186%	185%	188%	189%	192%	193%	38
168%	170%	174%	175%	180%	181%	186%	185%	188%	192%	192%	193%	195%	39
169%	173%	175%	180%	181%	186%	185%	188%	190%	191%	191%	194%	196%	40
171%	175%	180%	181%	186%	185%	188%	190%	191%	194%	194%	197%	198%	41
177%	180%	181%	186%	185%	188%	190%	191%	194%	194%	197%	197%	199%	42
178%	181%	186%	185%	188%	190%	191%	194%	194%	197%	197%	199%	200%	43
181%	186%	185%	188%	190%	191%	194%	194%	197%	197%	199%	200%	202%	44
186%	185%	188%	190%	191%	194%	194%	197%	197%	199%	200%	202%	202%	45
185%	189%	189%	192%	194%	195%	197%	197%	199%	200%	202%	202%	201%	46
189%	190%	192%	194%	194%	196%	197%	199%	200%	202%	202%	201%	201%	47
190%	193%	192%	194%	197%	197%	199%	200%	202%	202%	201%	201%	204%	48
190%	192%	195%	197%	198%	200%	200%	202%	202%	201%	201%	204%	207%	49
193%	195%	197%	197%	198%	201%	202%	202%	201%	201%	204%	207%	208%	50
196%	195%	198%	199%	202%	202%	202%	201%	201%	204%	207%	208%	209%	51
196%	198%	199%	202%	203%	204%	201%	201%	204%	207%	208%	209%	208%	52
199%	200%	201%	203%	204%	203%	204%	204%	207%	208%	209%	208%	208%	53
201%	202%	204%	205%	204%	205%	207%	207%	208%	209%	208%	208%	208%	54
202%	204%	205%	207%	206%	208%	209%	209%	209%	209%	208%	208%	208%	55
204%	206%	207%	209%	209%	210%	211%	210%	210%	209%	208%	208%	205%	56
206%	207%	210%	211%	213%	213%	214%	212%	210%	209%	208%	206%	204%	57
207%	210%	211%	213%	215%	215%	214%	212%	211%	209%	207%	204%	201%	58

211%	211%	213%	215%	217%	217%	215%	213%	211%	209%	206%	202%	200%	59
211%	213%	216%	217%	218%	217%	216%	214%	211%	209%	204%	202%	199%	60
211%	212%	214%	215%	219%	217%	216%	213%	210%	207%	204%	201%	198%	61
211%	211%	213%	213%	219%	215%	215%	213%	208%	205%	202%	199%	197%	62
210%	210%	211%	212%	212%	213%	213%	210%	207%	204%	200%	198%	196%	63
210%	210%	210%	209%	210%	210%	210%	207%	205%	201%	199%	197%	194%	64
209%	209%	208%	208%	208%	208%	207%	205%	202%	200%	197%	195%	193%	65
208%	208%	207%	206%	205%	205%	204%	202%	200%	197%	195%	193%	191%	66
208%	207%	206%	204%	203%	202%	201%	199%	197%	195%	193%	191%	189%	67
207%	206%	204%	202%	201%	199%	198%	196%	195%	193%	191%	189%	188%	68
206%	204%	203%	201%	199%	197%	195%	193%	192%	191%	189%	188%	186%	69
206%	203%	201%	199%	197%	194%	192%	191%	189%	189%	187%	186%	184%	70
205%	202%	200%	197%	195%	192%	190%	188%	187%	186%	185%	184%	183%	71
204%	201%	198%	195%	193%	190%	187%	186%	185%	184%	183%	182%	181%	72
203%	200%	197%	194%	191%	186%	185%	184%	183%	182%	181%	181%	180%	73
202%	198%	195%	192%	189%	184%	182%	181%	181%	180%	179%	179%	178%	74
201%	197%	194%	190%	187%	182%	179%	179%	178%	177%	177%	176%	175%	75
200%	196%	192%	188%	185%	178%	177%	176%	176%	175%	174%	173%	173%	76
199%	195%	191%	187%	178%	176%	175%	174%	173%	172%	172%	171%	170%	77
198%	193%	189%	181%	176%	173%	172%	172%	170%	170%	169%	168%	167%	78
197%	192%	186%	179%	174%	171%	170%	169%	168%	167%	166%	165%	165%	79
196%	191%	183%	177%	171%	169%	168%	167%	165%	164%	164%	163%	162%	80
193%	189%	181%	174%	168%	167%	166%	165%	163%	162%	161%	160%	159%	81
191%	186%	178%	171%	167%	166%	164%	163%	162%	160%	159%	158%	156%	82
188%	184%	176%	169%	166%	164%	163%	161%	160%	158%	156%	155%	154%	83
186%	181%	173%	166%	165%	164%	161%	159%	157%	155%	154%	152%	151%	84
183%	179%	171%	165%	164%	161%	159%	157%	155%	153%	151%	149%	147%	85
181%	177%	169%	164%	161%	159%	157%	155%	152%	151%	148%	148%	143%	86
178%	174%	166%	161%	159%	157%	155%	152%	150%	147%	147%	143%	140%	87
176%	172%	161%	159%	157%	155%	152%	150%	147%	146%	142%	139%	136%	88
173%	165%	159%	157%	155%	152%	151%	147%	145%	142%	138%	135%	132%	89
171%	160%	157%	155%	152%	151%	147%	145%	141%	138%	135%	132%	128%	90
165%	157%	154%	151%	151%	146%	144%	140%	137%	135%	131%	128%	124%	91
160%	154%	151%	150%	146%	143%	139%	136%	134%	131%	127%	124%	121%	92
155%	151%	149%	146%	142%	139%	135%	133%	130%	126%	123%	120%	117%	93
150%	147%	144%	141%	138%	134%	132%	129%	126%	122%	120%	117%	113%	94
145%	142%	139%	136%	133%	130%	128%	125%	122%	119%	116%	113%	112%	95
140%	138%	135%	132%	129%	126%	123%	121%	119%	116%	113%	111%	110%	96
138%	129%	130%	127%	124%	122%	119%	117%	116%	112%	110%	109%	109%	97
130%	121%	125%	122%	120%	117%	115%	114%	112%	110%	108%	109%	108%	98
120%	123%	120%	118%	115%	113%	111%	110%	109%	107%	108%	107%	107%	99
120%	113%	117%	114%	113%	110%	109%	106%	106%	106%	105%	105%	105%	100

112%	115%	114%	112%	110%	109%	106%	105%	105%	105%	105%	104%	104%	101
114%	113%	112%	110%	109%	106%	105%	105%	104%	104%	104%	103%	103%	102
112%	111%	110%	109%	106%	105%	104%	104%	104%	103%	103%	102%	101%	103
111%	109%	108%	106%	105%	104%	104%	103%	103%	102%	102%	101%	100%	104
109%	108%	106%	105%	104%	103%	103%	103%	102%	102%	101%	100%	100%	105
108%	106%	104%	103%	103%	102%	102%	102%	102%	101%	100%	100%	100%	106
105%	104%	103%	102%	101%	101%	101%	101%	101%	100%	100%	100%	100%	107
104%	103%	102%	101%	100%	100%	101%	102%	100%	100%	100%	100%	100%	108
102%	101%	100%	100%	100%	100%	101%	100%	100%	100%	100%	100%	100%	109
101%	101%	100%	100%	100%	101%	100%	100%	100%	100%	100%	100%	100%	110
101%	101%	100%	100%	102%	100%	100%	100%	100%	100%	100%	100%	100%	111
101%	100%	100%	102%	100%	100%	100%	100%	100%	100%	100%	100%	100%	112
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	113
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	114
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	115
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	116
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	117
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	118
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	119
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	120
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	121
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	122
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	123
100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	124

Ratio of Male Smoker Factors to Male Nonsmoker Factors

Issue Age	Duration												
	1	2	3	4	5	6	7	8	9	10	11	12	13
0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%
5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	115%
6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	115%	122%
7	100%	100%	100%	100%	100%	100%	100%	100%	100%	107%	115%	122%	129%
8	100%	100%	100%	100%	100%	100%	100%	100%	107%	115%	122%	130%	138%
9	100%	100%	100%	100%	100%	100%	100%	107%	115%	122%	130%	140%	147%
10	100%	100%	100%	100%	100%	100%	107%	115%	122%	131%	141%	147%	153%
11	100%	100%	100%	100%	100%	107%	115%	122%	130%	141%	147%	153%	159%
12	100%	100%	100%	100%	107%	115%	122%	132%	141%	147%	154%	159%	167%
13	100%	100%	100%	107%	115%	122%	132%	142%	148%	153%	160%	165%	172%
14	100%	100%	107%	115%	122%	132%	140%	145%	152%	157%	165%	172%	176%
15	100%	107%	115%	122%	133%	138%	146%	151%	158%	166%	173%	176%	181%
16	107%	115%	124%	135%	140%	145%	152%	157%	165%	172%	177%	179%	183%
17	115%	126%	136%	141%	146%	154%	159%	165%	173%	175%	179%	181%	185%
18	127%	136%	141%	147%	152%	158%	166%	174%	176%	180%	182%	184%	188%
19	136%	141%	147%	153%	159%	166%	174%	176%	181%	183%	185%	188%	192%
20	141%	147%	153%	159%	165%	173%	178%	179%	184%	187%	188%	190%	194%
21	148%	155%	160%	167%	174%	176%	181%	183%	186%	188%	192%	193%	197%
22	153%	160%	165%	173%	174%	179%	181%	183%	188%	190%	194%	196%	199%
23	161%	167%	173%	177%	178%	184%	184%	186%	192%	194%	197%	201%	203%
24	165%	175%	175%	180%	181%	185%	188%	190%	193%	198%	199%	201%	203%
25	174%	175%	178%	182%	187%	189%	189%	195%	195%	198%	201%	203%	205%
26	175%	177%	180%	185%	189%	189%	195%	195%	198%	201%	204%	205%	206%
27	177%	179%	187%	185%	189%	195%	195%	198%	201%	204%	205%	207%	206%
28	180%	187%	189%	191%	195%	195%	198%	199%	201%	206%	207%	206%	208%
29	183%	190%	190%	193%	195%	198%	199%	201%	204%	207%	206%	208%	209%
30	193%	192%	194%	195%	197%	199%	201%	204%	205%	208%	209%	211%	211%

31	189%	195%	196%	200%	202%	203%	204%	206%	208%	210%	210%	211%	212%
32	192%	197%	198%	202%	203%	204%	207%	209%	210%	211%	212%	213%	214%
33	200%	200%	202%	203%	206%	207%	207%	211%	212%	213%	215%	215%	215%
34	200%	205%	204%	207%	207%	210%	210%	213%	214%	216%	215%	216%	216%
35	203%	207%	210%	208%	211%	213%	213%	214%	217%	217%	217%	218%	218%
36	209%	207%	209%	211%	210%	213%	214%	215%	217%	218%	219%	219%	219%
37	209%	207%	209%	212%	214%	214%	215%	217%	218%	219%	219%	220%	220%
38	205%	208%	211%	214%	213%	215%	217%	219%	219%	221%	221%	221%	220%
39	210%	211%	212%	212%	213%	216%	217%	219%	220%	222%	222%	222%	222%
40	209%	212%	214%	216%	216%	218%	218%	220%	222%	223%	224%	223%	223%
41	213%	211%	215%	215%	217%	219%	220%	222%	223%	224%	225%	224%	224%
42	212%	213%	215%	217%	218%	220%	221%	223%	224%	226%	226%	225%	225%
43	212%	215%	216%	218%	219%	221%	222%	225%	225%	228%	227%	227%	226%
44	215%	217%	217%	218%	221%	222%	224%	225%	227%	229%	228%	227%	227%
45	215%	215%	219%	220%	221%	223%	225%	227%	228%	230%	229%	229%	227%
46	218%	218%	220%	220%	222%	223%	224%	225%	226%	228%	227%	226%	224%
47	220%	221%	220%	221%	223%	223%	223%	224%	225%	225%	224%	222%	221%
48	222%	222%	223%	222%	223%	223%	222%	222%	223%	222%	221%	219%	218%
49	226%	225%	223%	224%	223%	222%	222%	221%	220%	220%	218%	216%	214%
50	227%	227%	226%	224%	223%	222%	221%	219%	219%	218%	215%	213%	211%
51	230%	228%	226%	226%	224%	222%	220%	219%	217%	215%	212%	210%	207%
52	234%	230%	228%	226%	224%	222%	219%	217%	215%	212%	210%	207%	204%
53	236%	232%	230%	226%	223%	221%	218%	216%	213%	210%	207%	204%	201%
54	237%	234%	231%	228%	224%	221%	218%	214%	211%	208%	204%	201%	197%
55	239%	237%	232%	229%	225%	220%	216%	213%	209%	205%	201%	198%	194%
56	240%	235%	231%	227%	224%	219%	216%	212%	208%	204%	200%	196%	190%
57	237%	234%	230%	226%	223%	219%	215%	211%	207%	203%	199%	195%	187%
58	237%	233%	229%	225%	221%	218%	214%	210%	206%	202%	198%	191%	183%
59	236%	232%	228%	224%	220%	217%	213%	209%	205%	201%	197%	191%	180%
60	235%	231%	227%	223%	220%	216%	212%	208%	204%	201%	195%	190%	178%
61	234%	230%	226%	223%	219%	215%	211%	207%	203%	200%	194%	189%	181%
62	233%	229%	225%	221%	218%	214%	210%	206%	202%	199%	193%	188%	182%
63	232%	228%	224%	221%	217%	213%	209%	205%	202%	198%	192%	186%	180%
64	231%	227%	224%	220%	216%	212%	208%	204%	201%	197%	191%	185%	178%
65	230%	226%	222%	219%	215%	211%	207%	204%	200%	196%	190%	183%	177%
66	228%	223%	219%	215%	211%	207%	203%	199%	195%	191%	184%	178%	172%
67	225%	220%	216%	212%	207%	203%	198%	194%	189%	185%	179%	173%	168%
68	223%	218%	213%	208%	203%	199%	194%	189%	184%	180%	174%	169%	163%
69	220%	215%	210%	205%	200%	195%	189%	184%	179%	174%	169%	164%	159%

70	217%	212%	207%	201%	196%	190%	185%	179%	174%	169%	164%	159%	154%
71	215%	209%	203%	198%	192%	186%	180%	165%	169%	163%	158%	154%	149%
72	212%	206%	200%	194%	188%	182%	176%	170%	164%	157%	153%	149%	145%
73	210%	204%	197%	191%	184%	178%	171%	165%	158%	152%	148%	144%	140%
74	208%	201%	194%	187%	180%	174%	167%	160%	153%	155%	155%	139%	136%
75	205%	198%	191%	184%	177%	169%	162%	156%	151%	154%	139%	135%	132%
76	201%	194%	187%	180%	173%	167%	159%	153%	153%	139%	135%	132%	129%
77	197%	190%	183%	177%	170%	163%	157%	155%	152%	140%	134%	131%	124%
78	193%	186%	180%	173%	166%	161%	157%	153%	140%	130%	124%	121%	118%
79	188%	182%	176%	170%	164%	159%	155%	142%	143%	133%	130%	127%	124%
80	184%	178%	172%	167%	161%	156%	143%	143%	137%	131%	128%	125%	128%
81	180%	174%	169%	163%	158%	145%	142%	137%	134%	129%	129%	129%	112%
82	176%	170%	165%	160%	155%	142%	137%	135%	141%	129%	129%	112%	111%
83	172%	167%	161%	156%	141%	138%	135%	140%	129%	129%	112%	111%	110%
84	168%	163%	158%	153%	138%	135%	139%	129%	129%	113%	111%	110%	109%
85	163%	159%	154%	150%	135%	138%	129%	130%	113%	111%	110%	109%	107%
86	159%	155%	151%	147%	136%	129%	130%	113%	111%	110%	109%	108%	106%
87	156%	152%	147%	135%	129%	131%	113%	111%	110%	109%	108%	106%	105%
88	152%	148%	144%	129%	131%	113%	112%	110%	109%	108%	106%	105%	104%
89	148%	144%	134%	131%	114%	112%	110%	109%	108%	107%	105%	104%	103%
90	144%	140%	134%	114%	112%	111%	109%	108%	107%	105%	104%	103%	102%
91	140%	136%	114%	112%	111%	109%	108%	107%	106%	104%	103%	102%	101%
92	135%	114%	112%	111%	109%	108%	107%	106%	104%	103%	102%	101%	100%
93	114%	112%	111%	110%	108%	107%	106%	104%	103%	102%	101%	100%	100%
94	113%	111%	110%	108%	107%	106%	105%	103%	102%	101%	100%	100%	100%
95	111%	110%	108%	107%	106%	105%	103%	102%	101%	100%	100%	100%	100%
96	110%	109%	107%	106%	105%	103%	102%	101%	100%	100%	100%	100%	100%
97	109%	107%	106%	105%	103%	102%	101%	100%	100%	100%	100%	100%	100%
98	107%	106%	105%	104%	102%	101%	100%	100%	100%	100%	100%	100%	100%
99	106%	105%	104%	102%	101%	100%	100%	100%	100%	100%	100%	100%	100%

Duration							Duration						Attained
14	15	16	17	18	19	20	21	22	23	24	25 Ultimate	Age	
100%	100%	100%	106%	114%	122%	131%	138%	144%	151%	158%	166%	173%	25
100%	100%	106%	115%	122%	129%	135%	144%	151%	158%	166%	173%	176%	26
100%	107%	114%	122%	129%	137%	144%	151%	158%	166%	173%	177%	178%	27
107%	115%	122%	129%	137%	144%	151%	158%	166%	173%	177%	179%	182%	28
115%	122%	129%	136%	144%	151%	158%	166%	173%	177%	181%	183%	186%	29
122%	129%	136%	144%	151%	158%	166%	173%	179%	181%	184%	186%	188%	30
129%	136%	145%	151%	158%	168%	177%	180%	182%	185%	187%	189%	192%	31
137%	145%	153%	158%	167%	177%	180%	182%	184%	187%	189%	192%	194%	32
145%	152%	159%	166%	176%	180%	182%	184%	187%	189%	192%	194%	196%	33
153%	159%	167%	173%	180%	182%	184%	187%	189%	192%	194%	196%	201%	34
159%	167%	173%	180%	182%	184%	187%	189%	192%	194%	196%	201%	201%	35
166%	174%	178%	182%	184%	187%	189%	192%	194%	196%	201%	201%	203%	36
174%	178%	182%	184%	187%	189%	192%	194%	196%	201%	201%	203%	205%	37
176%	182%	184%	187%	189%	192%	194%	196%	201%	201%	203%	205%	206%	38
182%	184%	187%	189%	192%	194%	196%	201%	201%	203%	205%	206%	206%	39
184%	187%	189%	192%	194%	196%	201%	201%	203%	205%	206%	206%	209%	40
187%	189%	192%	194%	196%	200%	201%	203%	205%	206%	206%	209%	211%	41
190%	193%	195%	196%	200%	201%	202%	204%	206%	206%	209%	211%	212%	42
190%	195%	196%	200%	202%	202%	204%	206%	206%	209%	211%	212%	214%	43
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197%	200%	202%	204%	204%	205%	208%	209%	210%	212%	214%	215%	214%	45
200%	201%	204%	204%	205%	208%	209%	210%	212%	214%	215%	214%	214%	46
200%	203%	204%	205%	208%	209%	210%	212%	214%	214%	215%	214%	213%	47
204%	205%	206%	208%	209%	210%	212%	214%	214%	215%	213%	213%	213%	48
206%	207%	207%	209%	210%	212%	214%	214%	213%	213%	213%	213%	212%	49
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209%	210%	211%	213%	215%	213%	214%	214%	211%	211%	210%	209%	209%	53
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211%	214%	214%	215%	216%	215%	211%	211%	210%	210%	209%	208%	205%	55

213%	213%	215%	215%	216%	212%	211%	212%	212%	209%	208%	205%	203%	56
215%	215%	216%	216%	212%	211%	212%	212%	209%	209%	207%	205%	200%	57
216%	216%	217%	213%	211%	212%	213%	210%	210%	208%	207%	203%	198%	58
217%	217%	216%	212%	212%	213%	212%	212%	210%	209%	205%	200%	195%	59
219%	217%	214%	212%	213%	213%	214%	212%	212%	208%	202%	196%	192%	60
219%	214%	212%	213%	214%	215%	215%	214%	210%	204%	196%	192%	190%	61
219%	213%	213%	215%	217%	216%	217%	213%	206%	198%	193%	190%	187%	62
221%	217%	216%	217%	217%	218%	216%	209%	200%	194%	191%	187%	185%	63
222%	222%	220%	219%	219%	217%	211%	202%	195%	191%	188%	186%	182%	64
223%	222%	222%	222%	218%	212%	204%	196%	192%	189%	188%	185%	179%	65
224%	224%	223%	219%	213%	205%	198%	194%	191%	190%	186%	179%	175%	66
224%	223%	221%	215%	206%	199%	195%	193%	192%	188%	180%	175%	172%	67
225%	222%	218%	208%	200%	196%	195%	194%	191%	183%	176%	172%	168%	68
224%	219%	211%	202%	197%	196%	196%	194%	185%	178%	174%	170%	165%	69
222%	215%	205%	199%	197%	198%	197%	188%	180%	177%	171%	167%	162%	70
219%	208%	201%	199%	198%	197%	190%	182%	180%	174%	168%	164%	158%	71
213%	204%	200%	199%	197%	190%	184%	182%	177%	170%	164%	160%	155%	72
210%	203%	200%	197%	190%	184%	184%	180%	173%	167%	161%	157%	151%	73
210%	204%	198%	190%	184%	184%	182%	176%	169%	163%	158%	153%	148%	74
207%	201%	190%	184%	184%	183%	178%	172%	166%	160%	154%	150%	146%	75
203%	195%	185%	185%	184%	179%	174%	168%	162%	157%	151%	148%	143%	76
201%	190%	185%	185%	180%	175%	170%	164%	159%	153%	148%	145%	141%	77
196%	190%	186%	181%	176%	173%	166%	161%	155%	150%	146%	143%	139%	78
192%	187%	182%	177%	174%	169%	162%	157%	152%	148%	143%	141%	137%	79
188%	183%	178%	175%	171%	166%	159%	154%	150%	145%	141%	138%	134%	80
184%	180%	175%	171%	167%	162%	156%	151%	147%	143%	139%	136%	132%	81
181%	175%	171%	168%	164%	159%	153%	149%	145%	140%	136%	134%	130%	82
177%	172%	168%	164%	161%	157%	151%	146%	142%	138%	134%	131%	127%	83
174%	168%	164%	161%	159%	154%	148%	144%	140%	135%	131%	129%	125%	84
171%	165%	162%	159%	156%	151%	145%	141%	137%	133%	129%	127%	124%	85
167%	162%	159%	156%	153%	149%	143%	139%	135%	131%	127%	125%	122%	86
170%	160%	157%	154%	151%	146%	140%	136%	132%	128%	125%	123%	121%	87
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165%	152%	146%	143%	140%	136%	131%	126%	125%	122%	119%	117%	114%	91
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158%	146%	141%	138%	136%	129%	125%	123%	120%	118%	116%	114%	112%	93
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149%	138%	136%	130%	125%	125%	120%	118%	116%	115%	112%	110%	109%	95
145%	137%	129%	124%	125%	122%	118%	116%	117%	112%	110%	109%	108%	96
141%	136%	122%	124%	121%	119%	115%	118%	112%	110%	109%	108%	107%	97
136%	132%	128%	120%	121%	117%	119%	112%	110%	109%	108%	107%	106%	98
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118%	124%	112%	110%	109%	108%	107%	106%	105%	104%	103%	102%	101%	103
125%	112%	110%	109%	108%	107%	106%	105%	104%	103%	102%	101%	100%	104
112%	111%	109%	108%	107%	106%	105%	104%	103%	102%	101%	100%	100%	105
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105%	104%	103%	102%	101%	100%	100%	100%	100%	100%	100%	100%	100%	111
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102%	101%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	114
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100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	116
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	117
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	118
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	119
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	120
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	121
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	122
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	123
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	124