
2002 Valuation Actuary Symposium

September 19–20, 2002

Lake Buena Vista, Florida

Session 10PD

2001 CSO Table

Moderator: Michael Taht
Panelists: Michael Taht
Paul W. Skalecki

Summary: Panelists discuss the several issues regarding the 2001 CSO table. Attendees explore the implication for statutory reserving in general; implications for reserving under Regulation XXX; implications for the tax definition of life insurance and other broad strategic issues; and the timeframe and adoption mechanics for statutory reserving, tax reserving, and Section 7702.

MR. MICHAEL TAHT: I'm the moderator for this session, and Paul Skalecki is speaking with me. Paul is a senior actuary at Northwestern Mutual Life Insurance Company. Paul and I have been very active in the development of the 2001 CSO table from the start. The Society had a task force called the Individual Life Valuation Mortality Research Task Force. I chaired that task force and Paul made a significant contribution to the work of that task force. Paul and I were both members of the Academy's 2001 CSO Task Force. I don't know if the table could have been done without the significant efforts that Paul and others at his company put in to produce a complete table. We were also members of the Academy's 2001 CSO Table Implications Working Group. We've been involved with the development of this table from the start, and I think the best news is that the Life and Health Actuarial Task Force (LHATF) adopted the table at the New Orleans Fall Meeting. That is, by far, the biggest hurdle that was crossed. Unfortunately, neither Paul nor I were there to celebrate.

Before we get into the presentation, there are a couple of things that might be of interest. There are a number of reports that have been produced surrounding the 2001 CSO Table. The Society of Actuaries put out a report on the valuation basic table, which is the building block of the 2001 CSO Table. That's on the Society website. The Academy has the 2001 CSO Report and the report of the 2001 Table Implications Working Group. Both those reports are on the Academy's website where you can find all the tables and a lot of the information that we'll present. Finally, the regulation that is used to implement the 2001 CSO Table will be in the September mailing from the NAIC.

Paul is going to speak about the development of the 2001 CSO Table and the underlying valuation basic table. That should give you a sense of how it was created and how it is different. It will give me some insights into the table and what it looks like. Once Paul is finished, I'm going to talk about the model regulation and some of the implications for different product groups. I'll also discuss whole life, term, and universal life, and then I'll make some comments on Section 7702.

MR. PAUL W. SKALECKI: As Mike mentioned, he and I have been involved in this whole project from day one. I want to provide a little bit of background on the 2001 CSO Table. I'll talk about its development and show the impact on the basic reserve calculation. Mike and I did a session very similar to this one at last year's symposium. It's a very important topic for valuation actuaries.

The origin of the 2001 CSO Table really started in November of 1998, when the NAIC's Life and Health Actuarial Task Force requested that the Society of Actuaries begin work on a new valuation table to replace the 1980 CSO Table. The SOA accepted that request, but they also realized that it was a very large project. They chose to split the project up into multiple pieces, in order that it could be accomplished. The first piece was the development of a basic underlying mortality table. The SOA's Individual Experience Studies Committee was, at the time, working on the development of a 1990-95 basic table. That fit nicely into the timeframe.

The Society formed the Individual Life Insurance Valuation and Mortality Task Force that Mike chaired. The responsibility of this group was to take the 1990-95 basic table, add data to it where it was weak, in some cases, and to smooth it out a little bit. Then there was the Academy's CSO Task Force, which was responsible for taking the basic valuation table from Mike's group and adding on the loading to come out with the valuation table. Finally, the CSO Implications Work Group looked at things other than just statutory reserves, like nonforfeiture values, tax reserves, definition of life insurance and things along those lines.

I'll talk a little bit about the 1990-95 basic mortality table. It's 1990-95 experience, and it consisted of data from 21 companies with about \$5.7 trillion of exposure. About \$4.1 trillion was male, and \$1.6 trillion was female. It was standard, fully underwritten ordinary individual life insurance policies. It was a select-and-ultimate form. The select period was 25 years, although at some issues ages, it didn't run the full 25 years. In those cases, the select mortality was set equal to the ultimate mortality at the corresponding age. Issues ages were 0 to 99 and attained ages went out to 120. It is smoker distinct. Donna Claire, at Session 2, also mentioned that, of the 21 companies that contributed, four contributed more significantly than others because they had a bigger database. These four companies made up about 60% of the \$5.7 trillion exposure. The data include term conversions that were tracked from the original issue date and preferred risk. Also excluded were certain things such as policies with limited or no underwriting like guaranteed issue or simplified issue, and reduced paid-up or extended term. Finally, about 20% of the data was from a medically underwritten origin, about 43% was nonmedical, and 37% was paramedical. The basic focus of this table was to develop a table that had a good fit rather than smoothness.

Chart 1 gives you an idea of why a new valuation table was needed. This compares mortality, ultimate mortality, composite smoker/nonsmoker mortality from the 1990-95 basic table as a percentage of the 1975-80 basic table. We're looking at the improvement in mortality over the last 15-20 years. At ages other than 30 to 45, you can observe that the mortality, especially the male mortality, runs at about 80-85% of the 1975-80 Basic Table.

What we see happening from roughly ages 30 to 45, is mostly due to AIDS. We actually adjusted for AIDS when we came out with the 2001 Valuation Basic Table. Mortality improved roughly 10-15% over those 15-20 years.

That's when the Society of Actuaries stepped in and worked on the 2001 Valuation Basic Table. This isn't the valuation table itself, but it's the unloaded valuation basic table. This was based on the 1990-95 experience, but we made adjustments for older age mortality. Because the 1990-95 basic data was a little bit weak at the older ages, we felt a need to enhance that data. We also smoothed it out. I mentioned that the basic table emphasized fit rather than smoothness. We wanted to smooth the table out a little bit, which is more appropriate for a valuation table. We also wanted to try to bring the mortality up to the current date. The mortality was already about 10 years old because it's from the 1990-95 period. We didn't want it to be 10 years out of date already when it is adopted.

The older age adjustments that we made were focused on issue ages 75 and above and attained ages above 90. This is mainly because the 1990-95 study had no data with issue ages above 72, and it had limited data for attained ages 85 and above. In order to supplement the data in places where it was weak, we obtained a large amount of mortality information from the Veteran's Administration. Jack Bragg & Associates also did a special mortality study to help us out at these older ages. We also decided to set the highest age at 120, so that mortality rate is equal to one. The 1980 CSO Table's highest age is 99, where $q=1$.

As far as the adjustments that we made for smoothness during the select period. We used a two-dimensional Whittaker-Henderson Type B formula. The Valuation Basic Table (VBT) has a 25-year select period, but not all ages have a full 25 years. Some ages are 15 or 20 years, but what we did at those ages was we set the select mortality equal to the ultimate mortality. There's a difference here with the select period being 25 years—a difference between this and 1980 CSO. When 1980 CSO was first developed, it just had ultimate mortality. There was no select period. Shortly after that, the 10-year select adjustment factors followed, and the 19-year select factors were introduced in the XXX regulation. So we're extending the select period out to 25 years.

Another adjustment that we also made for smoothness was to adjust the mortality for AIDS. Chart 1 had the big AIDS hump in mortality. To remove AIDS, or at least minimize the impact of it, we capped the mortality valuation basic table at 85% of the 1975-80 table.

Regarding mortality adjustment improvements, the 1990-95 experience had a central year of 1992. So as of 2001, we were already nine years out of date. We picked 2001 as the year that we wanted to project mortality to because we felt the table would not be in effect prior to that date, and we also felt it would be inappropriate for statutory reserving to project the mortality beyond a date when it would be in place.

We had a nine-year mortality projection in the 2001 Valuation Basic Table. We looked at both insured and secular mortality improvements. We focused on general mortality improvements and not those driven by changes in underwriting. There has been a tremendous improvement in mortality in the last 10-15 years, but much of that was driven by improvements in underwriting. We wanted to focus on just the actual true mortality improvements. Based on the data that we had regarding mortality improvement, we used no improvement for issue ages 0-45 and above ages 90. For males, we incorporated a 1% per year improvement over nine years for ages 50-80. For females, we incorporated 0.5% improvement over nine years for ages 55-85.

The resulting valuation basic table has six main tables. Donna Claire also mentioned that there were 42 tables. There are 42, if you count all the different unisex versions and the age-last birthday version, versus age nearest birthday and all the other permutations that you have. Basically, there are six main tables. There are male and female tables, and smoker, nonsmoker, and composite tables for issue ages 0 to 99 and out to attained age 120. We didn't have any preferred class table. We had some discussion as to whether we should try to create those, but we felt that, based on the data that we had, it wouldn't be appropriate. The SOA's 1990-95 basic table didn't have any identifiable preferred risk experience, so we had nothing to work with. In addition, there's not a real clear definition of what preferred risk is throughout the industry. Different companies have preferred risk, but preferred risk to one company is probably different than it is to a different company and different to the next company.

Chart 2 looks at the impact of the graduation of the basic mortality data as well as the adjustments that we made. I view the spike at the younger ages, aged 20 or less, as insignificant because there are a very limited number of deaths. I'm not concerned about the fact that for males, for example, we go up to 150%. I just think that's a function of a very small number of deaths there. The little valley around ages 30-45 is the result of the impact of removing the AIDS claims from the underlying data. We have a very small downward slope in mortality between ages 55 and about 70-75. That's attributable to the mortality improvement that we incorporated. There is a nine-year improvement for 1992 to 2001. Then, out to the very high attained ages, out above 110, it slopes up sharply because at age 120 the Valuation Basic Table has the same omega as the 1990-95 basic table.

Here's where the Academy group stepped in and took the 2001 Valuation Basic Table and put a loading on it to make it appropriate for statutory reserving. We thought about the reasons why there is a need for a load on the valuation basic table. There are a number of different reasons and we came up with four of them.

The first one is you want to have a load to ensure confidence in your data. This fortunately wasn't an issue since we had \$5.7 trillion of exposure. The second is company variation. This refers to the fact that the table needs to be sufficient to cover the mortality for most companies that are going to use the table for valuation. The main reason why companies would have different levels of mortality is probably due to underwriting. If that is the case, then perhaps a flat percentage load would be the appropriate way to load the valuation basic table. However, there are other reasons for a load too.

The third reason is random fluctuation. This accounts for the variability in experience for any one particular company. A good way to look at this is to look at a binomial distribution. If you take the variation of the standard deviation over the mean, that ratio becomes smaller as the percentage of the probability increases. We felt that for a load due to random fluctuation, it would be appropriate to have a decrease in percentage as the base mortality increases. Note that we have two different kinds of loads here. We have a flat percentage load for the company variation and one that varies by the probability of death for the random fluctuation.

A fourth reason for a load is there is unknown variation. Things happen that we can't know about in advance, like the flu epidemic in the early part of the 1900s. There are things like AIDS or the West Nile Virus. Most of the mortality experts that we talked to felt that an appropriate way to reflect this kind of variation is just to include a certain number of extra deaths per thousand.

When you are all done with these reasons for including a load, there's no one unique appropriate way to come up with a load. You can get all of us together here, and we could probably each come out with our own different load and perhaps none of them would be inappropriate.

We went to the NAIC Life and Health Actuarial Task Force, looking for their input regarding the load. We went to them in March of 2001, and we wanted input on three different items. First, we thought there were two different approaches that we could use to determine the load. One would be called the Mortality Margin Approach, where basically we felt that the load that we put on top of the valuation basic table should be just for the mortality variation. It should be sufficient so that it would cover mortality variation for most of the companies that use the table. It wouldn't use other margins in other areas or other factors in the valuation to offset it.

The other approach that we presented them with was something we referred to as the Reserve Margin Approach. This approach views the load as being appropriate if the reserves themselves are appropriate. This approach actually would use margins in the interest rate to perhaps offset the load needed for mortality. This approach looks at the reserve in total.

The LAHTF believed that the mortality margin approach was a better way to go. Since we're developing a mortality table, we should be concerned with the mortality itself being adequate to cover the experience for most companies, and we shouldn't take into account other factors such as interest.

The second area where we wanted input from LHATF was on the level of the load. We presented two options to them—a 10% load and a 20% load. They came back and said, "Why don't you do 15?" The third area we wanted input on was the form of the load. LAHTF agreed

that an appropriate form of the load would be some function of one over the expectation of life. This was the same way that the 1980 CSO Table was loaded, and this type of a load increases with age on an absolute basis and generally decreases with age on a percentage basis.

Let's look at the 1990-95 comparative mortality study (Chart 3). A 15% load, or 15% of the average, is reflected by the white bar. Each one of these bars represents an individual company in the study. A 15% load would cover all the companies from the white bar over to the left. Basically, we're covering 15 out of the 21 companies, which is about 71%. For a statutory valuation, 71% is probably a little bit on the low end of covering most companies.

I think actuaries will have different opinions as to what "most" would mean for a statutory valuation. I think you could get reasonable actuaries saying anything from maybe 70% up to maybe 85% would qualify as "most." Since 71% was kind of on the low end, LHATF included a requirement in the 2001 CSO model regulation that the company must perform an asset adequacy analysis, if they choose to use the 2001 CSO Table. There's not as much conservatism in the underlying table as there was in the 1980 CSO Table. They want to make sure that the reserve that you are holding, based on the 2001 CSO Table, is truly appropriate.

Chart 4 shows the extra number of deaths per thousand. The load formula that we used will have a loading that increases the actual number of deaths per thousand as age increases. The males are the top line, and the females are the bottom line. So the males have a higher loading on the basis of the absolute number of deaths. Above age 100, we need to grade the mortality back down to one at age 120. We picked age 100 as the point where we would start to grade the load linearly from whatever it was at age 100, down to zero at 120. Anything to the right of age 100 is an artificial load.

Here's the same load now expressed as a percentage (Chart 5). You can see that the percentages generally decrease as age increases, and the percentage load for females is now higher than the percentage for males. The absolute load had just the opposite relationship. The male load was larger than the female on an absolute basis. On a percentage basis, it's just the opposite.

What we found was that, generally, the load that we had when you express it as a percentage is larger for females than males. It's larger for nonsmokers than for smokers, and it's larger at younger ages than at older ages. When you look at the load on an absolute basis, with absolute number of deaths, it's larger for males than females, larger for smokers than nonsmokers, and larger at older ages than younger ages. The relationship, on an absolute basis, is opposite from the percentage basis.

Chart 6 shows the comparison of the 2001 CSO Table as a percentage of 1980 CSO. This is ultimate composite mortality. There was a bit of a spike at around age 30 for the males. While we removed most of the AIDS claims by capping the valuation basic table at 85% of the underlying mortality, I don't think we quite got all the AIDS claims out. So there is a little bit of a spike there.

The slope of these lines is declining from around age 30 or so, out to 45 or 50. That indicates that the slope of the 2001 CSO Table is flatter than the slope of the 1980 CSO Table. That's important when we get to looking at the reserves. On the opposite end of this, from ages 50 out through 75 or so, the slope is steeper for 2001 than for 1980. Again, at the very old ages, getting near age 100, the 1980 CSO graded to one age, 99 so that's why this ratio is dropping at the very high ages.

Then our group looked at some reserve comparisons. We did it for three different products. The first one we looked at was whole life mean reserves. This is the comparison of a 2001 CSO reserve, which is a percentage over the 1980 CSO reserve. Chart 7 is for ultimate composite mortality for males. Just to keep this presentation relatively short, I'm showing male graphs. Female graphs have a very similar picture.

This particular graph shows durations one and then every fifth duration. In the first duration, there is the Commissioners Reserve Valuation Methodology (CRVM), so it's really a one-year term type reserve and that's why that relationship is around 60%. In the renewal years, it starts out around 80% or so, and grows gradually as age increases.

Another product that we looked at was the 20-year level premium term policy (Chart 8). We felt that this particular policy was probably representative of what's being sold in the market today. I know there are term policies out for 10 years, 15 years, 25 years, and 30 years, but the 20-year term seemed like a nice representative sell for our term products.

There is a little more variation by issue age. The five lines shown are different issue ages. The top line is issue age 65, and it is mostly higher than the other ages. If you recall from Chart 6, these are the ages where the mortality is steeper, and so you would expect a higher reserve with steeper mortality. On the other end of the spectrum, at issue age 25, which is the bottom line here, the results are substantially lower when compared to the 1980 CSO. Again, if you recall from Chart 6, that's where the mortality was much flatter than the 1980 CSO. You're going to have smaller reserves. Ages 35, 45 and 55 are all right in the middle and those tend to converge around 60-70%. So if you're comparing term versus whole life on the previous slide, there was the bigger reduction in reserves for term than for whole life.

A third product that we looked at was universal life (Chart 9). The particular UL product that we looked at was one where the premium being paid in was sufficient enough so that it would keep the policy in force out until age 100. The comparison in the first year is based on CRVM type methodology, a one-year term, so it's noticeably lower. In the fifth year, it is around the same general level where the whole life graph was in the fifth year. For years 10 and beyond, it's at 100%, and the reason for this is because of the cash value floor in the universal life plan. You have to hold at least the cash value so it didn't matter, in this particular case, whether we used 1980 CSO or 2001 CSO. We have the same reserve values.

We just looked at three slides that showed reserves for some individual cells. Our group also looked at a model office, and to do this, we took the same three products that we just looked at—the whole life, the universal life that had no cash value at its expire, and a 20-year level premium term plan. We looked at five different issue ages (25, 35, 45, 55 and 65) and both genders. We assumed that sales would increase by 5% a year. We included a level 4% lapse assumption. We actually looked at different scenarios of lapses, and we had some which started at around 10% and graded down to an ultimate level of 4%. We ended up sticking with the level 4% lapse

scenario just because the results of the model office weren't much different for the level 4% than for something starting higher and grading down to 4%. For simplicity, we used a level 4% lapse rate and we used ultimate mortality since we felt that most companies would use ultimate mortality for valuation since that generally gives the lower reserve, with the exception of some shorter duration term plans.

So for the model office, let's look at the results by gender. The male reserves for the 2001 CSO Table are in the 75-80% of 1980 CSO range. There are two bars in Chart 10 for each of these sets. The bar on the left, is the model office after 10 years, and the bar on the right is the model office after 20 years.

The females had a reduction of around 15% in reserves, and overall, it's about a 20% reserve reduction. We did the same analysis, splitting it by plan (Chart 11). Whole life showed about a 15% reserve reduction; term, on the other hand, showed a 30-35% reserve reduction for the level 20-year premium term plan that we had. This just demonstrates the fact that the term reserves are more sensitive to the mortality than whole life. With whole life, there's the interest factor, which is more significant in the calculation, while the interest factor for term isn't as significant.

UL is closer to 100%. Again, that's because of the cash value floor on the UL plan that we had. Overall, there was about a 20% reduction. One more way to look at this is to look at it by issue age. Generally, it's fairly consistent by issue age. Thirty-five is perhaps a little bit lower than the other ages, but it's fairly consistent by issue age.

A few observations about the 2001 CSO table overall reserves. Reserves on the 2001 CSO Table are about 20% lower overall than the 1980 CSO Table. There are larger reductions for term. The new reserve levels should come out with increased policyholder value, and not sacrifice reasonable solvency protection for the company.

There is one last step that our group did. There was some concern about the fact that we only had 21 companies, even though that was a large or significant portion of the industry. There was some justified concern among the regulators about whether, for some reason, these 21 companies

aren't representative of the rest of the industry? So, it's kind of one last final check. Our group received permission to use John Bragg's data for the 1990-94 study that he did. He had 23 companies in the study, but only nine of those overlapped with our study, so we had an additional 14 companies that we could look at here.

Overall the Bragg mortality level was consistent with the Society data, although it was a different shape. It's generally a little bit flatter than the Society data. If you were to incorporate the flatter Bragg data into the Society data, that would make the Society mortality a little bit flatter, which would tend to cause reserves to be reduced a little bit in the aggregate.

MR. MICHAEL TAHT: As I said at the start, I'm going to talk a bit about the model regulation and then offer some more insights into how the 2001 CSO Table will impact certain products from the perspective of reserves, nonforfeiture values, and cost of insurance (COI) rate. I'll also offer some thoughts on Section 7702 compliance.

We're going to look at the status and the different provisions within the model regulation. The regulation was recently passed by LHATF. The expectation is that it'll be passed by the NAIC in December 2002. Then it's up to the states to start adopting it.

So what is the model regulation? I guess one of the things to know is that with the 1980 CSO Table, it was implemented via the new standard valuation law. The 2001 CSO Table does not need to be implemented via a law change. It needs to only require a regulation. That makes it a little easier to adopt. The actual title of the regulation is recognition of the 2001 CSO mortality table for use in determining minimum reserve liabilities and nonforfeiture benefits, model regulation. I guess it's pretty specific and to the point.

Within the regulation, it specifies when you can use the 2001 CSO Table, which is January 1 of the calendar year following the implementation. So if the state adopts it next year, you can start using it on policy issues for January 1, 2004 and later. There's a transition period within the regulation, so you can use it once it's adopted within a state, and you must use it after January 1, 2009. That's kind of the window that has been put in. In prior versions of the model regulation,

that date was January 1, 2008, but given the speedy adoption of the regulation, they decided to move it to January 1, 2009.

Within the regulation, you have the term of the 2001 CSO mortality table. What does that encompass? That encompasses sex distinct rates. It also encompasses gender-blended rates. It encompasses smoker and nonsmoker rates and composite. Composite is the units smoked. It encompasses an ultimate table and a select-and-ultimate table. There is a slight change in the definition from the 1980 CSO table which, at the time of adoption, didn't include a select form.

Now one of the things within the regulation is that there is no extended term insurance table. The Society task force looked at available extended term insurance experience, and there was not a significant amount available, except from one company, which did have a large block. The block of extended term insurance (ETI) experience was really not materially different from their regular ultimate experience. The decision was to not create an extended term insurance table. The other sort of driver behind that was the fact that the role of extended term insurance within the industry has significantly lessened since 1980 when the 1980 CSO table was adopted or put forth.

Within the regulation, there are rules for using smoking distinct rates. If your premium rates are smoking distinct, then you know, for minimum reserves and minimum nonforfeiture values, you can use either the smoking distinct rates or the composite rates. As for the valuation net premiums and additional premium minimum reserves, if there are any, if the gross premium is less than valuation at premium, you can use smoking distinct rates, even if composite rates are used for minimum reserves and minimum nonforfeiture values. So you can use them in your deficiency reserve testing. If premium rates are not smoking distinct, then you must use the composite rates.

There is one new requirement in the model regulation. If you're going to use the 2001 CSO table, you must file an actuarial opinion with an asset adequacy test. There is some needed wording, in terms of single state filings, but, for the most part, if you're going to use the table, you need to have an asset adequacy report.

This came about as there were discussions at LHATF regarding the actual underlying experience. There were variations by company and the different products that can use the CSO table. A guaranteed issue product can use the 2001 CSO table. So there was a discomfort on the part of regulators. They wondered whether they had lowered valuation mortality, in some instances, too much. In terms of having an asset adequacy report, when you use a 2001 CSO table, I think there is a reasonable solution. One thing that was in earlier drafts, which has been removed from model regulations, was a provision that required that the company submit their own experience as part of the valuation process. That was done to give regulators a sense of whether we can get comfortable with the mortality or get comfort that using the 2001 CSO tables are appropriate for this company? It became very difficult to put that into practice, and I think that is why it eventually was dropped from the model regulation.

With respect to the model regulation, there are some guidelines as to how it integrates with XXX. One pertains to calculating net level premiums for the UL exception from XXX. In the past, was 1980 CSO ultimate, sex distinct and smoking distinct? With the 2001 CSO table, sex distinct and smoking distinct are the same.

The 1980 CSO with select factors, unmodified by X factors, is allowed. It's the same, but you can use the 2001 CSO table.

For the basic reserve minimum mortality, the 1980 CSO with select factors is allowed. It is the same but the 2001 CSO conversions are used. In deficiency reserve minimum mortality, it was 1980 CSO with select factors allowed. The X factor is allowed in the first segment? Again, it's 2001 CSO with select factors allowed and the X factor allowed on the basic table. It would be the first segment.

For minimum reserves, you can see the rest of them. You can see some differences in the past. It was 1980 CSO with a ten-year select factor, and now it's the 2001 CSO ultimate rates only. This section actually hasn't received a lot of attention, but it does provide kind of a road map in terms of how you would apply the 2001 CSO table to Guideline XXX.

There are a few other applications of the table that are specified in the model regulation. Specifically, language still allows usage of the gender-blended tables. The blended tables are provided in the Academy report and the age of last birthday tables are provided in the Academy report.

One thing that is not in the final version of the model regulation that was adopted by LHATF is that the same form of the table does not need to be used for both basic reserves and alternative minimum reserves. There was much discussion at LHATF around the following issue: if you use your select-and-ultimate version of the table in your deficiency reserve testing, you should have to use it for your basic reserves, which, for term insurance, would result in an increase in basic reserves. There was much discussion. I think the ACLI was opposed to it, and, in the end, it was dropped from the model regulation.

The model regulation will be part of the September mailing from LHATF. Here's sort of the impact on product and the 2001 CSO table. It impacts basic reserves, deficiency reserves, and nonforfeiture requirements, but it also impacts reserves. It has an impact on maximum cost-of-insurance charges. The impact of the table is really quite widespread, and because it impacts different products, in different ways, and in different aspects of the product, it has a different emphasis. Certain product lines will likely be at an advantage if they utilize the 2001 CSO table. For other product lines, it probably will not be useful.

Before I do that, I just wanted to talk a bit about adoption. As I said before, LHATF has already adopted it. The NAIC should adopt in December 2002, and then states can start adopting the table. Companies will probably be able to start using it in some states as early as January 1, 2004. It might be a somewhat aggressive timeline, but by December 2004, at least 26 states are approving the table. That's important because then it becomes the prevailing table for tax purposes. If that occurs, then by January 2007, three years after the table becomes the prevailing table, it must be used for tax reserve purposes. Then, in 2009, it has to be used for valuation and for all new issues.

There are a couple of comments with respect to state adoption. As I said, the table will be implemented via a regulation, so it doesn't require legislation, with one exception. Florida requires a legislative change for the adoption of the table. The question has come up about whether the table can be adopted via codification? I think it's our opinion that most states would not consider it inclusion of the model regulation in codification. It is sufficient to be deemed the table or to deem the regulation adopted. I think, in most states, you'll actually have to see a formal action by the state to adopt the regulation, and it won't go through via the codification process.

The basic reserves are going to be impacted not only by the level of the table, but also by the shape of the table. In general, there are lower basic reserves, but that's not always the case. As Paul said, the Academy did some comparisons of whole life reserves. Paul showed some comparisons of male composite and female composite. Chart 12 looks at male nonsmoker. This is whole life meaning statutory reserves. It is calculated on the 2001 CSO table. Ultimate mortality is a percentage of the 1980 CSO ultimate.

You can see the lower mortality in duration one that is reflected in the lower duration one reserves. Reserves are about 85-90% thereafter. For female nonsmoker, you can see a similar pattern after duration one (Chart 13). For duration one reserves, you see a greater spread as a percentage of the 1980 CSO. That's primarily due to the fact that the mortality in the 2001 CSO table at the attained age of 55, 60, 65 for females is not significantly lower than that of the 1980 CSO table.

Chart 14 shows a similar pattern for male smokers. At age 65, you're approaching 100% and when we get to female smokers, you actually see a number of issue ages and durations. Mean statutory reserves on a whole life product will go up for female smokers (Chart 15). That's in part because female composite mortality hasn't improved as much as males. If you look at the construction of the table, the ratio of smoker to nonsmoker mortality for females is greater in the 2001 CSO table than in the 1980 CSO table. There's much less of a gap in that ratio between males and females. I think that's kind of what's driving a lot of that relationship there. It's exacerbated for female smokers.

Paul showed some of the results of the whole life model office. Table 1 gives a different slice. This is the model office reserves for the whole life plan, after ten years, under the 2001 CSO table. They are shown as a percentage of what they would have been under the 1980 CSO table. Reserve levels are in ranges that are 80-90%; on average they are around 85%.

TABLE 1
Whole Life Model Office Reserves – 2001 CSO Reserves as a Percentage of
1980 CSO Reserves
(After 10 Years)

	Age 25	Age 35	Age 45	Age 55	Age 65	All Ages
Male	80.0%	82.0%	83.5%	86.3%	89.7%	84.1%
Female	86.1%	86.9%	90.2%	85.1%	80.0%	85.8%
Combine	82.6%	83.6%	85.8%	85.8%	84.9%	84.8%

Let's talk a bit about term insurance. The implications for the 2001 CSO table on term insurance is that Section 7702 is not impacted, and maximum COI charges of course, are not impacted. Cash value limitations represent a small change, but there really is not a significant impact. Where the impact is felt is in basic reserves that are lower. There's a mixed impact on deficiency reserves, and kind of a mixed differential between using select-and-ultimate versions of the table.

We've done some analysis, and just to give you some sense of the product that we did our analysis with, we looked at a 10-year, 20-year, and 30-year term. The preferred and super preferred risk classes have very low mortality.

I mentioned that the cash value impact on term is relatively small. I think the current safe harbor is a term of 20 years or less, expiring before age 71. The 2001 CSO implications working group indicated that the safe harbor could be increased. What they proposed was for terms of 25 years or less for issue ages up to 45. There's term-to-age 70 for issue ages 46 to 60, and then terms of 10 years or less for issue ages 61 or older. Now I said "could," because, in the end, they recommend not to change the safe harbor because that would require opening up standard nonforfeiture law, which is not required. They do not put forth something that they would like to see done, but they do make this observation in case the standard nonforfeiture law is opened up any time in the future.

I'm going to look at just the impact on term, basic reserves on the next three charts by comparing a 10-year term (Chart 16), a 20-year term (Chart 17), and a 30-year term (Chart 18). This will give you a sense of the impact of the 2001 CSO table.

Basic reserves are calculated using the 2001 CSO ultimate version of the table and are compared to reserves calculated under the 1980 CSO version of the table. I think probably the most striking thing you see is that for female smokers, even on a 10-year term, there is an increase in reserves under the 2001 CSO table. The adoption of the table is not necessarily a good thing for everyone. At other lower issue ages, you see the relationship there, and for males, the reduction in basic reserves is larger. You see the similar relationship for a 20-year term (Chart 17). Again, the reductions in basic reserves are much more dramatic for male and female nonsmokers and female smokers. There is another 45-55% increase.

Chart 18 is a comparison of 30-year term. The impact on deficiency reserves is quite mixed. A number of factors will impact it. If you think about gross premiums, they include a provision for expense and profit, and that's going to work to sort of avoid or minimize deficiency reserves. Gross premiums discount future mortality at a higher rate of interest with a provision for lapses, which is a factor that can cause deficiency reserves. When you think about it, the X factor has kind of brought you closer to pricing mortality, at least at duration one. Of course, only justifying it by experience and changes in the slope of the valuation mortality can cause deficiency reserves. There's a redundancy in basic reserves that can offset some or all of the deficiency reserves at a later duration.

Now I'd like to give some observations regarding deficiency reserves using 2001 CSO versus 1980 CSO. In general nonsmoker deficiencies are lower. This is particularly apparent where the discontinuity at attained age 70 comes into play with XXX in the 1980 CSO table.

Smoker deficiencies are typically larger. The 2001 CSO table has a steeper slope, and the deficiencies tend to last longer because you have less redundancy in the basic reserves.

Let's look at 1980 CSO mortality that would be used in your alternative minimum reserve testing. There is equivalent mortality under the 2001 CSO table and pricing. At the start, we've basically pegged it so duration one is all equivalent, and then its slope is issues. Chart 19 shows a male aged 45, preferred nonsmoker. You can see for the 1980 CSO a sort of discontinuity in slope around durations 19, 20, 21.

What's provided in the table within Chart 19 is the net premiums under 1980 CSO mortality, with 2001 with X factors. Then, there is pricing mortality discounted at 4.5% and discounted at 12.5%. This just gives you a sense of relative impact.

Chart 20 is a male age 45 showing that deficiency reserves are higher for smokers. You can see that in the net premiums for 2001 versus 1980 CSO. You can also see that there's that discontinuity that brings it up. There is the mortality up to the level of the mortality that you'd have under the 2001 CSO table.

Chart 21 is a male aged 65, preferred nonsmoker. It shows the impact of having the 2001 CSO table. You are utilizing that which has select factors, all the way up to delayed issue age 95. That discontinuity at attained age 70 is removed. There is less of an impact for males at age 65. Chart 22 is a female smoker, which is really hurt by the increased steepness of the smoker table.

Table 2 gives some comparisons to the initial deficiency reserves. This is for a nonsmoker. These are sort of the sample sells that we put together at Tillinghast just to try to be representative of the market. The deficiencies are significantly less for nonsmokers. I guess we had male 45 and 55 increases, but on a ten-year plan, that's the only male 45 and the 25. But in total, they're significantly reduced. The same cannot be said for smokers (Table 3). You can see an increase in deficiency reserves. This is an initial deficiency reserve. You can see an increase in deficiency reserves. Again, it's a hypothetical product that we calculated or developed to do these calculations.

TABLE 2
Comparison of Initial Deficiency Reserves – Nonsmoker

Plan	1980 CSO	2001 CSO
10-Year Plan		
■ Male 45	.65	1.36
■ Male 55	—	.49
■ Male 65	9.90	—
■ Female 65	7.64	—
20-Year Plan		
■ Male 35	.11	—
■ Male 45	2.65	2.93
■ Male 55	12.44	4.31
■ Female 55	2.72	—
30-Year Plan		
■ Male 35	2.11	—
■ Male 45	16.76	9.85
■ Female 35	1.01	1.25
■ Female 45	9.54	2.53

TABLE 3
Comparison of Initial Deficiency Reserves – Smoker

Plan	1980 CSO	2001 CSO
10-Year Plan		
■ Male 45	—	2.56
20-Year Plan		
■ Male 35	1.62	2.33
■ Male 45	3.33	11.56
■ Male 55	9.76	11.46
■ Female 35	—	3.21
■ Female 45	—	1.82
30-Year Plan		
■ Male 35	1.57	2.16
■ Male 45	1.18	7.91
■ Female 35	—	12.46

Let's talk about universal life. These are the product specifications again. We set up a sample product to analyze it. I guess the product we do have has a level premium lapse support guarantee. With the implementation of the 2001 CSO table, we anticipate a change in guaranteed cost-of-insurance charges. Now one thing that should be noted is that the Implications Working Group recommended that the 2001 CSO table not be used as the maximum for cost-of-insurance charges. I think, as a general practice, that's what has been done in terms of product filings, and I believe there are at least two states where it's required, not necessarily in a law, but maybe in an addendum. The Implications Working Group still believes that there will be changes in the guaranteed cost-of-insurance charges. The lowering of the guaranteed cost of insurance charges will result in some areas. There is a lowering of current cost-of-insurance (COI) charges. We'll also see a change in surrender charges.

The following just gives an impact on terminal reserves or universal life products with a level target premium with secondary guarantees. Again, it's 2001 CSO as a percentage of 1980 CSO. Chart 23 shows a male preferred. Typically, we'd see reductions in reserves in the range of 80-90%, but there is a variance in the early durations.

Chart 24 is the female preferred. We mentioned that 1980 CSO has traditionally defined the level of guaranteed COI rates, but it's common practice. The impact of taking the 2001 CSO table and using it would be quite significant. We anticipate it would result in not only changes in guaranteed rates, but in changes in current rates and in load structures. You're not going to have the same level of profits coming out of your current COI rates, and you'll have to get those from other places. In many cases, especially with a variable universal life (VUL) product, there's not a significant impact on reserves. The impact of having to reflect the lower guaranteed COI rates on a VUL plan and then the trickle down effect of lowering current COI rates requires a kind of significant repricing effort.

Let's talk about tax reserves and Section 7702. With respect to tax reserves, it's pretty clear, once the table is adopted by 26 states, it becomes the prevailing table. When it's the prevailing table, it can be used for tax reserve purposes with a three-year transition period. That has been written into the section of the law. It's quite clearcut. The one issue that was somewhat

outstanding is what version of the table you would use. The ACLI has come out with a recommendation that says that, in aggregate, the ultimate version of the table produces the lowest reserves, lower than the select-and-ultimate version. So you would use the ultimate version for tax reserve purposes. They've also come out saying that in testing the table, there's really no material difference between using the composite version of the table and the smoker and distinct versions of the table. You can use either the composite or the smoker/nonsmoker versions of the table. With respect to tax reserves, the impact of 2001 CSO is pretty clear and pretty well laid out. Transition rules have been set. Section 7702 and 7702A are much muddier. Section 7702 and 7702A both state that the mortality to be used is the prevailing table. Again, the prevailing 2001 CSO table will become the prevailing table once 26 states adopt it.

However, there currently is no transition rule built into Section 7702 and 7702A. It's my understanding that the ACLI was waiting for the adoption of the 2001 CSO table by LHATF until they addressed this issue with the IRS. This will be an issue that they will tackle now. I've heard a similar transition period will exist or that it may follow the same transition as statutory reserves. I think the key is that you don't want to be in a position where you can't issue insurance, and that the cash values required to satisfy standard, nonforfeiture law are noncompliant with Section 7702. So that's the situation to avoid.

The Implications Working Group calculated some reductions in guideline premiums, and with the lower table, there will be lower levels of guideline premiums. For the guideline level with a level death benefit for male nonsmoker, the reduction will be in the range of 15-20%. Female nonsmokers were in the range of 15-30%. Male smokers' reduction was in the range of 15-20% and female smokers were ranging from 0-20%. For the guideline single premium, male nonsmokers will see a reduction in the guideline single premium of 5-20%. For female nonsmokers, it is 10-20%; for male smokers, it is 5-20%; and, for female smokers, it is about 0-5%.

I hope we've given you kind of a sense of what the table is, how it was created, what some of the key features are, and what its impact has been. The impact of the table is quite widespread. Reserves are going to be lower. I anticipate lower COI rates, and lower Section 7702 limits.

What are the implications? I think the result will be a more competitive term product. I think it'll reduce the need for offshore XXX solutions because of the reduction of basic reserves. I think on UL and VUL products, you're going to have to rethink your load structure and rethink where you're getting your profits from. I think it will facilitate longer term secondary guarantees. However, given what is happening with AXXX, there is going to be a counterbalance. I think power writers are going to have to look at their dividend scale. What is more important is there will be a less sufficient tax advantaged accumulation of products, so how will the industry respond? If I look into a crystal ball, I think, early on, you'll see a rush of term players and those who are significant in the UL market with secondary guarantees. I think that's the product that benefits most from the 2001 CSO table. Those in that market might say it hasn't done enough but it definitely does a lot.

I think you might also see the beginnings of a fire sale on accumulation products. As the industry starts to understand that the tax advantaged nature of accumulation products is eventually going to be lessened because of the adoption of the 2001 CSO table, that will spur a fire sale.

I think you'll start seeing UL and VUL players starting to investigate and try out different load structures to see what actually sticks in the marketplace. Then, at the end, I think you'll see the fire sale at its peak, and there will be a rush to get all your accumulation type products filed. I don't see any sort of real need to rush to market with a new accumulation type product with the adoption of the 2001 CSO table.

So those are just some thoughts on how the tables might play out in the market.

FROM THE FLOOR: There was some talk about the CSO table at another session, and Donna Claire kind of woke me up a little bit with the comment that this table isn't necessarily directly usable for those who have a lot of simplified and guaranteed issue business. I do a lot of valuation on payroll deduct UL and ordinary business that's pretty much entirely simplified issue and guaranteed issue. If that's the case, reserves might not be adequate. With the 2001 CSO as it is, would you have recommendations as to what someone doing valuation on this basis should maybe consider doing to raise those reserves and to do testing on those reserves?

MR. SKALECKI: I guess my response would be this is where the requirement of asset adequacy analysis comes into play. I'm not sure of the exact level of mortality that you would need to use for your evaluation, but, as long as asset adequacy analysis could justify whatever you are using, and as long as your reserves are at least as big as those generated by the 2001 CSO, I think you're okay.

MR. TAHT: At the March LHATF meeting, Jim Van Ellsen brought up this point. It was discussed and I think that the regulator's point of view is, use asset adequacy; although, from a company standpoint, the tax deductibility of the excess reserves was an issue that was brought up. It's not a tax favorable or a tax friendly position. I know there were some discussions at that meeting about using a multiple of the table. To be honest, I haven't heard any further discussion of the issue. That was something that was also mentioned.

MR. J.C. MCKENZIE SMITH: I want to go back to your slide about utilizing the new mortality table with Regulation XXX. Are you saying that if the guarantee period is about 10 years, you can use the select mortality all the way out for 25 years? In your note, you say that under the old act, it was 1980 CSO with select factors and X factors in the first segment. Under the new mortality table, there's no reference to the first segment.

MR. SKALECKI: I believe it's just during the first segment.

MR. TAHT: I think it is.

MR. SKALECKI: It's similar to how it's handled today with 1980 CSO.

MR. TAHT: So you have to back out of the select factor that's already there.

MR. SKALECKI: You just jump to the ultimate mortality after the first segment.

MR. MICHAEL A. PFALZER: Can you explain why the mortality for AIDS was removed? That seems to contradict the goals of being realistic and conservative?

MR. TAHT: We had a bunch of discussions about this in the construction of the valuation basic table. The removal of the AIDS claims was done for a couple of reasons. We felt that that significant hump in mortality, due to AIDS, was in large part the AIDS claims that were issued prior to the industry's full reaction to AIDS and blood testing and what not. Second, when you looked at population in AIDS deaths within the general population, that exposure period from 1990-95 had the highest level of deaths due to AIDS reported deaths. You actually saw a significant reduction in 1996 and 1997 in deaths due to AIDS. Of course, that may rise up, but given those two factors, we felt that that large of a hump was not necessarily representative of insured mortality, and we felt it was warranted.

MR. SKALECKI: Was it removed down just to 1996 and 1997 experience levels? Or was it removed completely?

MR. TAHT: What was done was the hump was moved to a level that was consistent as a percentage of the 1975-80 table around the hump. So it was around mortality levels of 85-100% of the 1975-80 table. If you read the 1990-95 experience table report, the percentage of identified AIDS claims is very very small. I think that's just a function of companies not really being able to identify that it is due to AIDS. It comes in as many other different causes. Although identifiable AIDS claims were low, the belief of the task force was that hump was really driven by deaths due to AIDS. We thought it was appropriate to make an adjustment.

MR. WAYNE E. STUENKEL: I have a question for you about the uneven state adoption with respect to term insurance and pricing and valuation. Let's assume my company is in a state that adopts quickly—say in 2003. On January 4, 2002, we can start issuing term insurance policies in our state on the new 2001 CSO and anywhere else that adopted 2001 CSO at that time. If I'm a valuation actuary at year-end 2004, I assume I can set up reserves in my state on wherever I sold based on 2001 CSO. In the states that haven't adopted at year-end 2004, am I having to put up significant deficiency reserves on those state statements? Is that under the current state requirement?

MR. TAHT: I'll quote Doug Doll's article "for filing in a state that has not adopted 2001 CSO," and this is sort of addressing the specific question, "you have to certify the reserves and aggregate meet the state's requirements, which includes valuing all contracts using the 1980 CSO. If this requires higher reserves, you may choose to file a separate statement." Of course, that's kind of his thought. Of course, if ALMR comes through, that would have an impact but I don't know of any state that has adopted that yet.

MR. SKALECKI: The ACLI actuarial committee plans to go and put a big push on for 2001 CSO adoption to avoid this kind of thing. But if one state were to delay an adoption for two or three years, that could really put a crimp on valuation actuaries signing statements filed in that state.

MR. TAHT: That's a good point. Any other questions? Time for probably one more.

MR. JAMES P. VAN ETTEN: This may be more a comment than a question. This concerns the removal of AIDS from the experience, and the first question that related to simplified underwriting. I think that removal of AIDS would make using a simple percentage of the table inappropriate for simplified underwriting and reserving because the AIDS elimination that we get from the medical underwriting would not occur. Any thoughts on that?

MR. TAHT: I think I take that as a good point. I think there are probably a lot of other reasons to not use a flat percentage of the table with simplified issue and guaranteed issue. The pattern of mortality is significantly different than you might see in either the ultimate CSO table and definitely in the select-and-ultimate table. Yes, that's a valid point.

MR. SKALECKI: I think it just stresses the importance of the asset adequacy analysis, especially for business like that.

CHART 1
1990-95 Basic Table as a Percentage of
1975-80 Basic Table

Ultimate, Composite

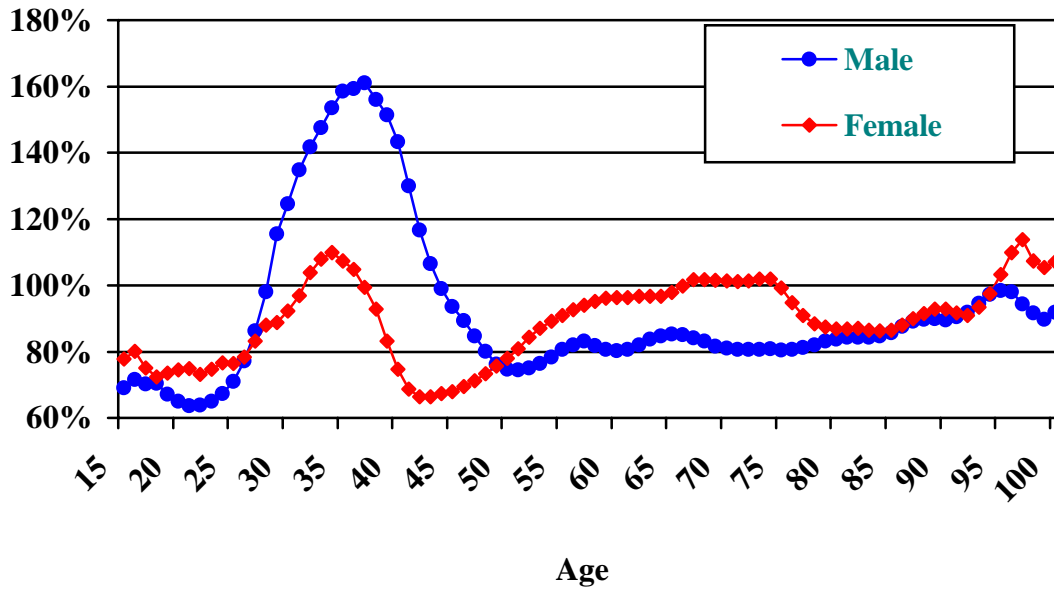


CHART 2
2001 VBT as a Percentage of
1990-95 Basic Table

Ultimate, Composite

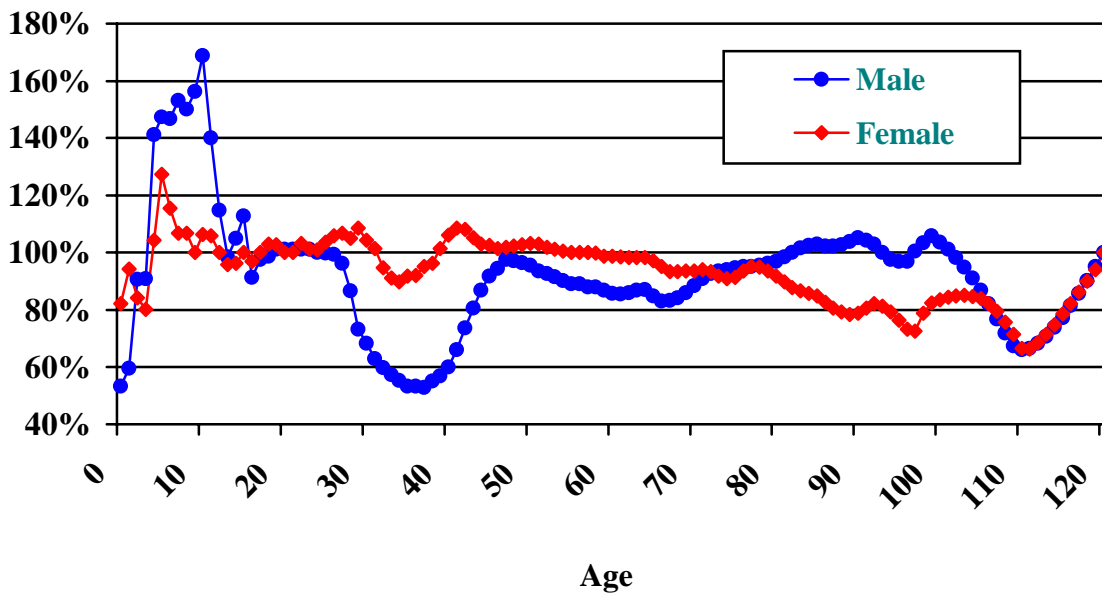


CHART 3
SOA 1990-95 Comparative Mortality Study

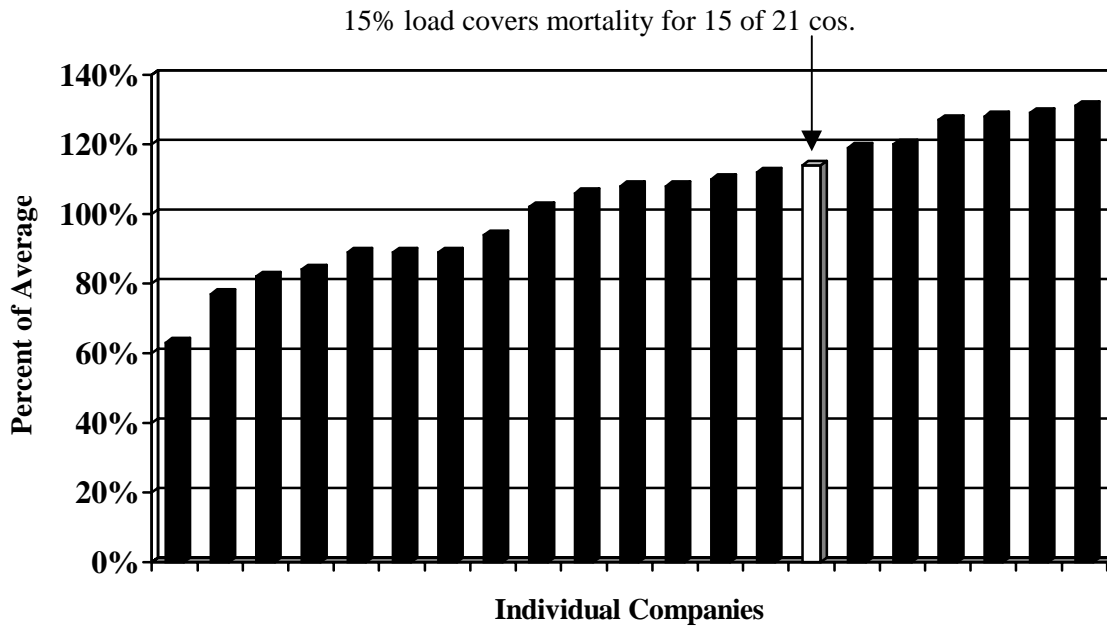


CHART 4
2001 CSO Table Loading
Extra Deaths per 1,000

Ultimate, Composite

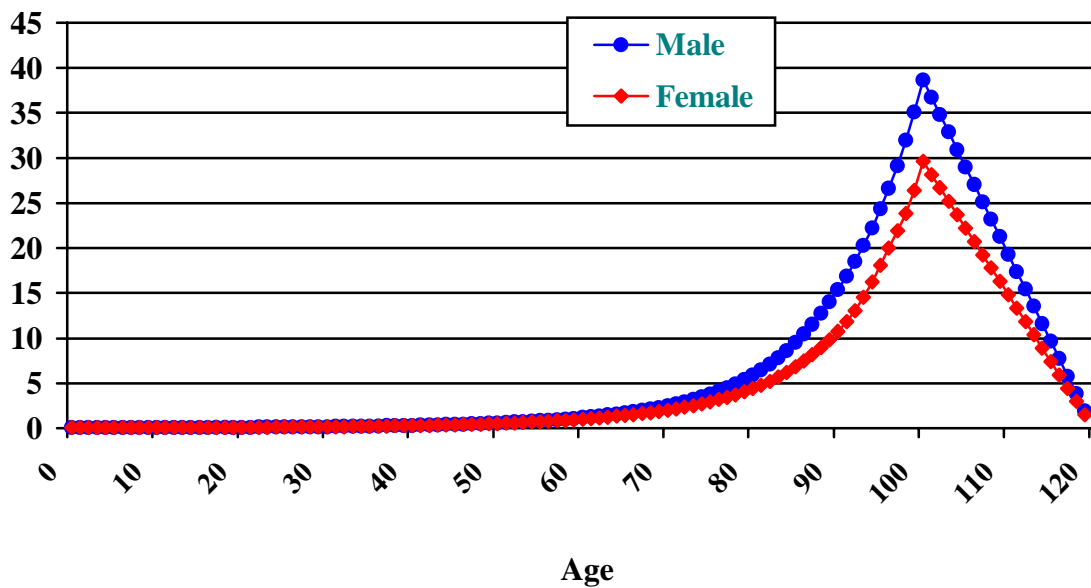


CHART 5
2001 CSO Table Loading as a Percentage of
2001 VBT

Ultimate, Composite

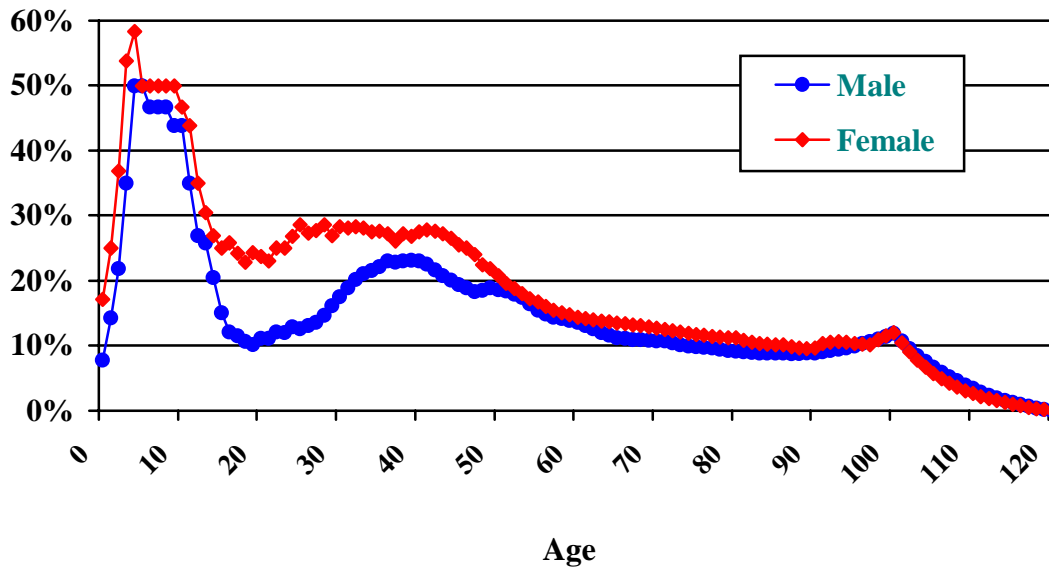


CHART 6
2001 CSO Table as a Percentage of
1980 CSO Table

Composite

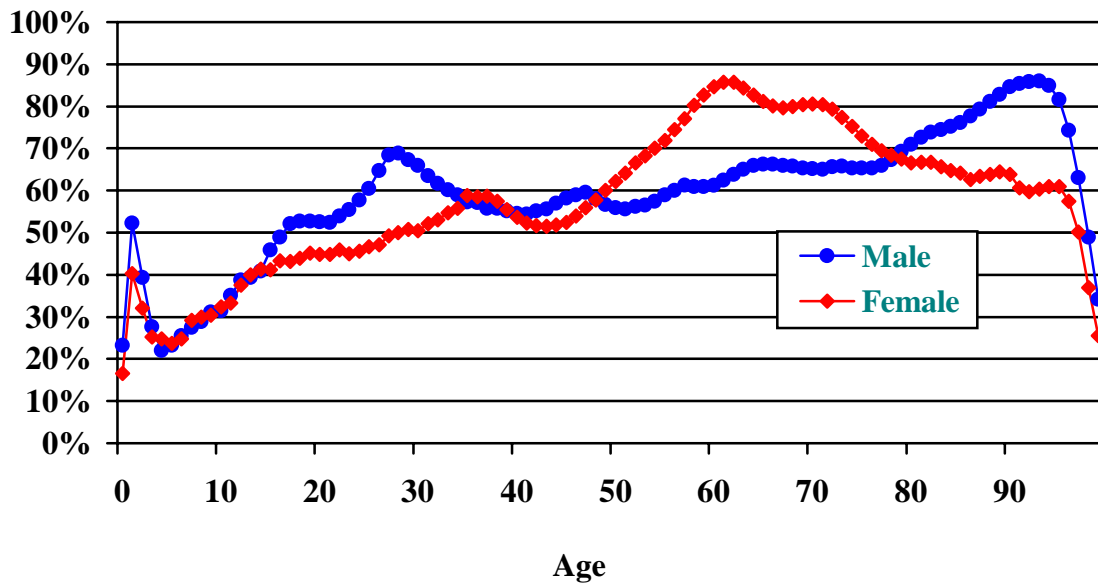


CHART 7
Whole Life Mean Reserves
2001 CSO as a Percentage of 1980 CSO

Ultimate, Composite, Male

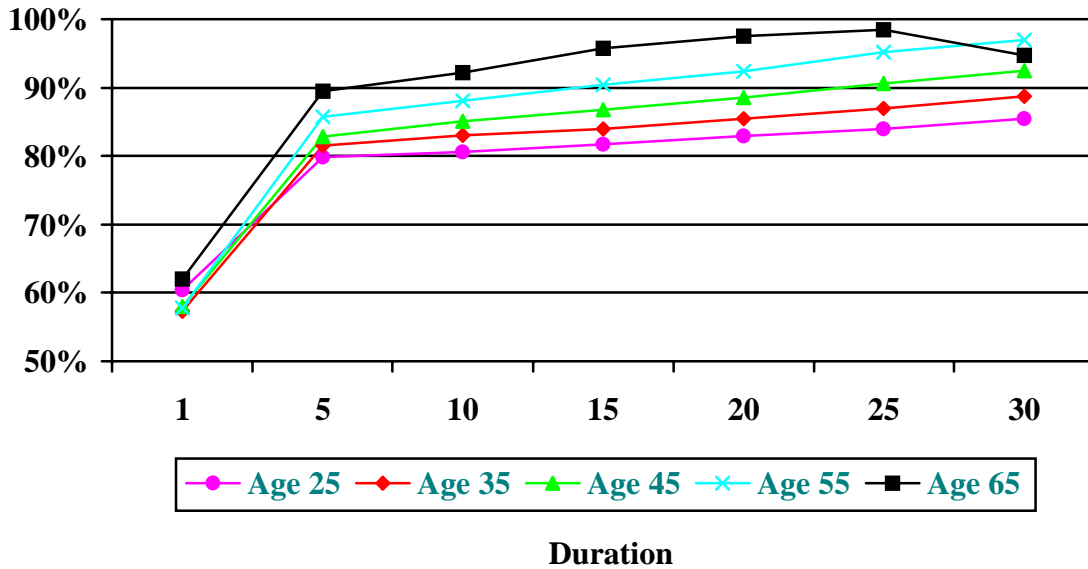


CHART 8
20-Year Level Premium Term Mean Reserves
2001 CSO as a Percentage of 1980 CSO

Ultimate, Composite, Male

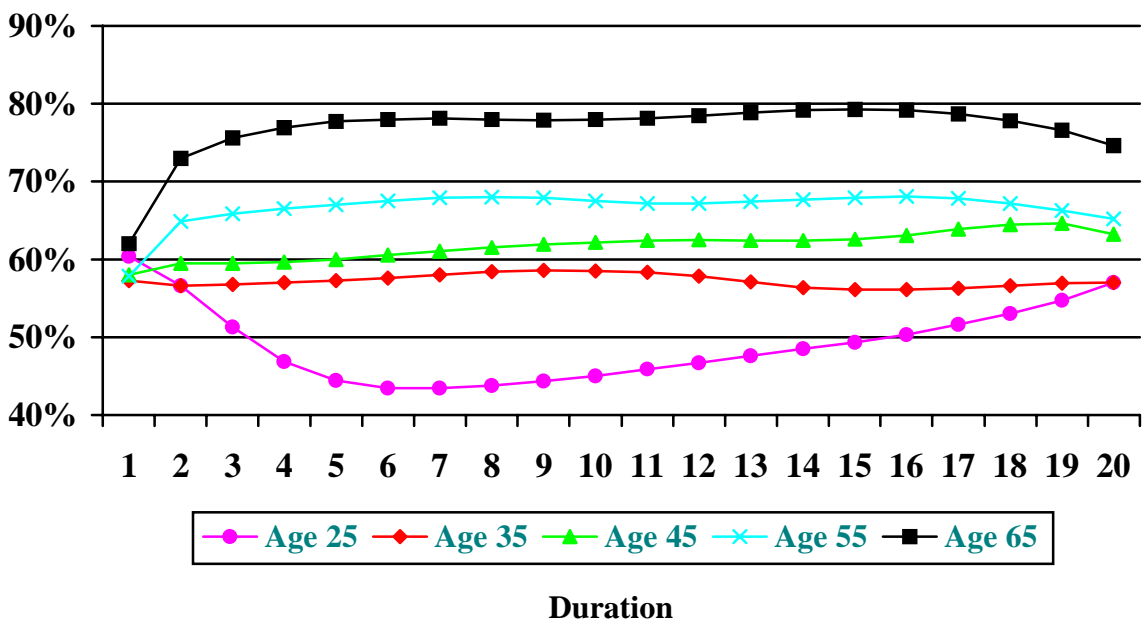


CHART 9
UL Level Premium to Zero Mean Reserves
2001 CSO as a Percentage of 1980 CSO

Ultimate, Composite, Male

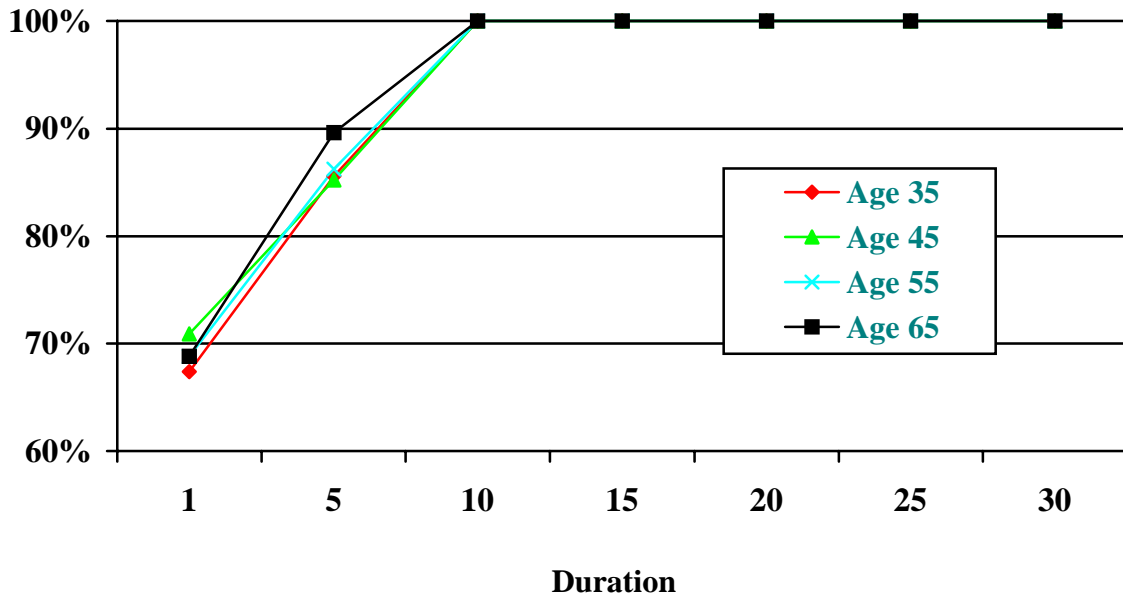


CHART 10
Ratio of 2001 CSO Table Reserves to
1980 CSO Table Reserves

Aggregated Results by Gender
 Ultimate, Composite

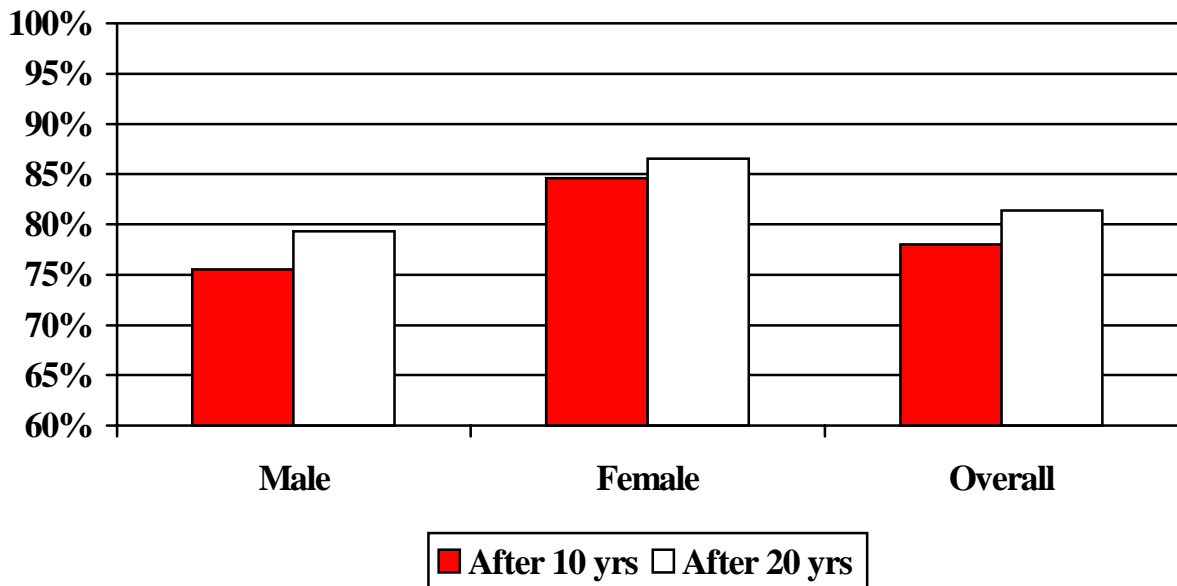


CHART 11
Ratio of 2001 CSO Table Reserves to
1980 CSO Table Reserves

Aggregated Results by Plan
Ultimate, Composite

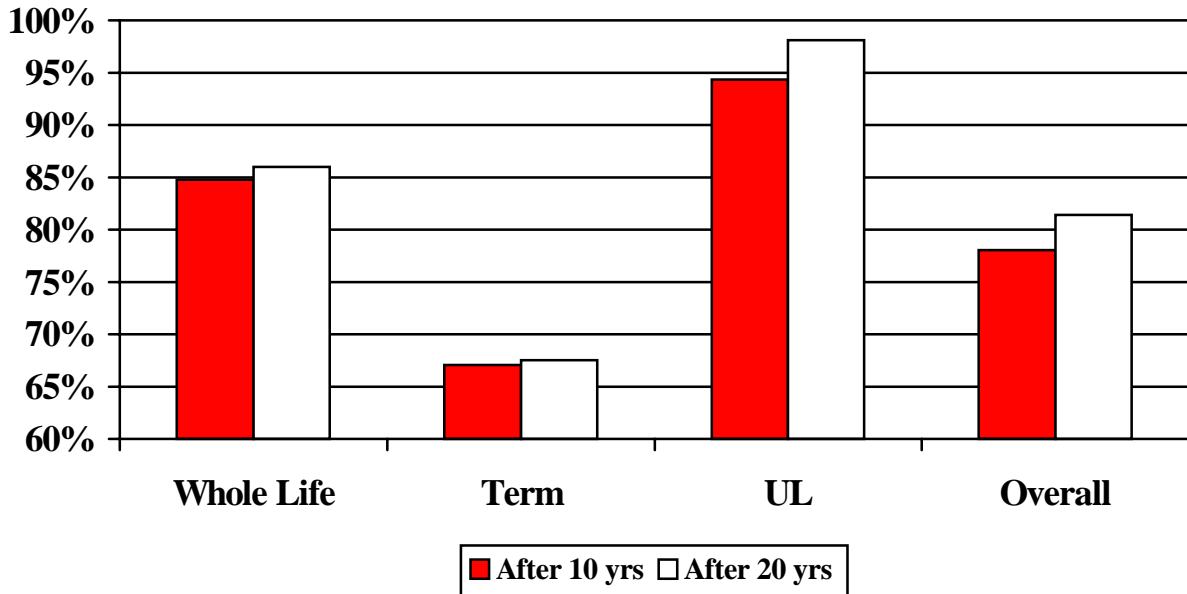


CHART 12
Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a Percentage of 1980 CSO
Nonsmoker – Ultimate – Male

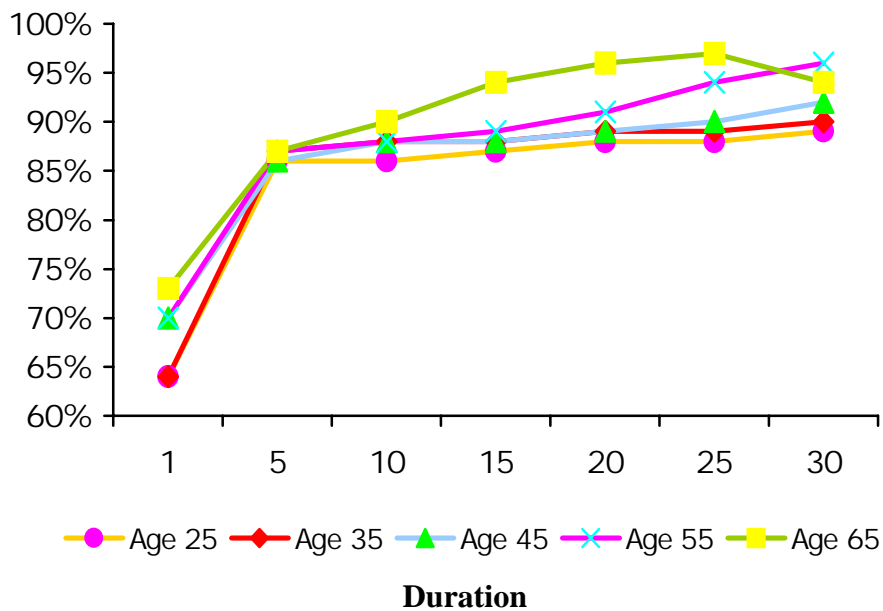


CHART 13
Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a Percentage of 1980 CSO
Nonsmoker – Ultimate – Female

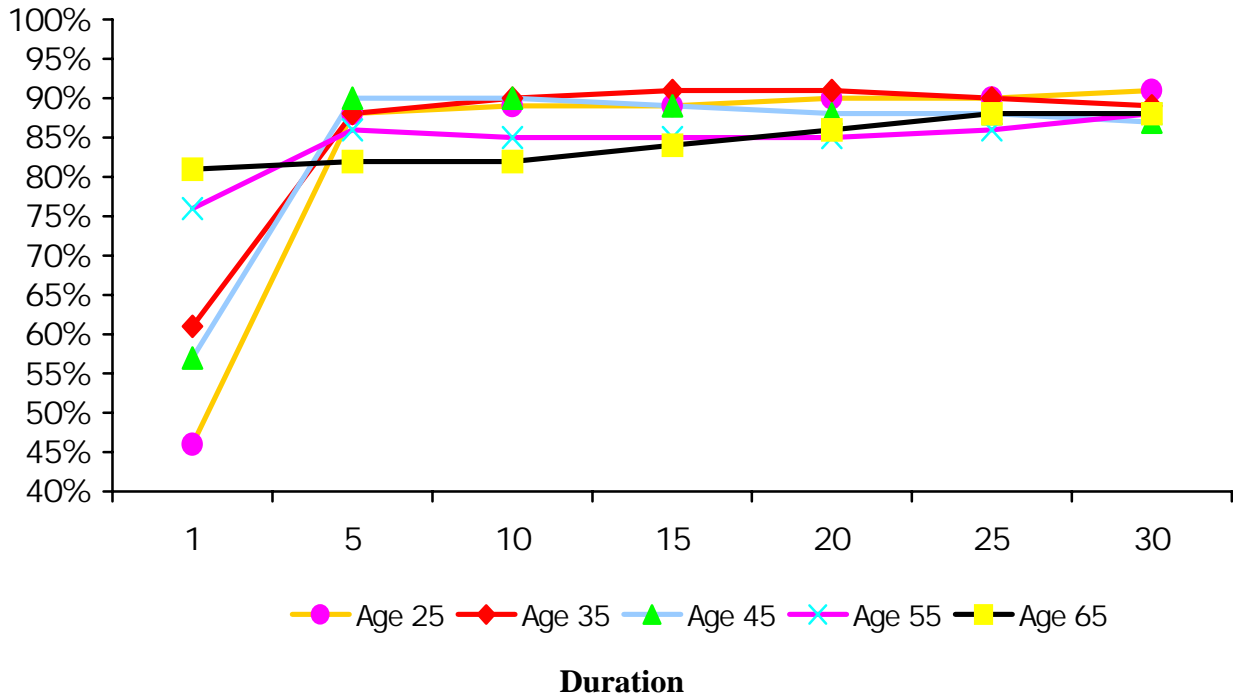


CHART 14
Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a Percentage of 1980 CSO
Smoker – Ultimate – Male

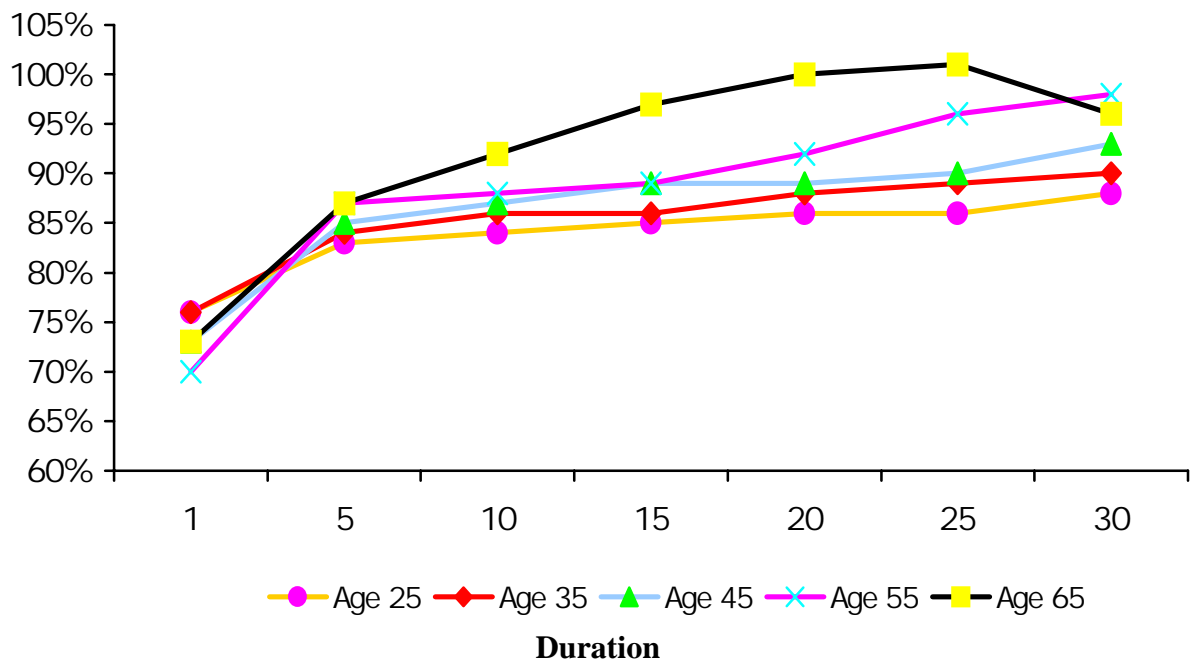


CHART 15
Whole Life Mean Statutory Reserves
Proposed 2001 CSO as a Percentage of 1980 CSO
Smoker – Ultimate – Female

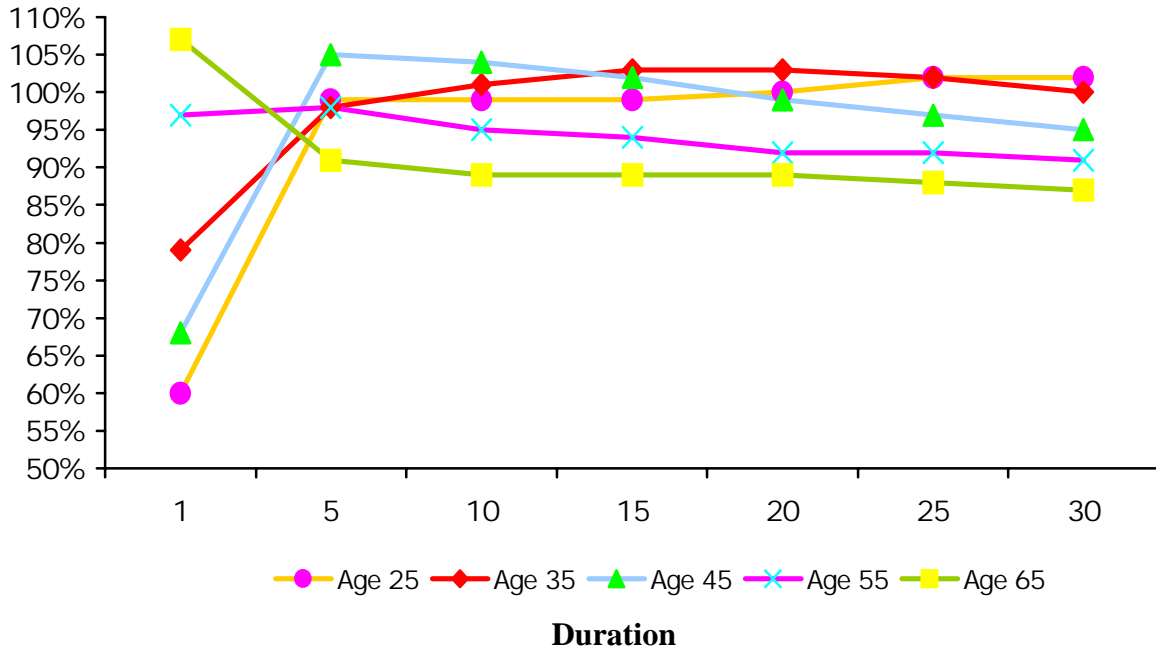


CHART 16
Present Value of Basic Reserve Increase Discounted at 7%
Ratio of 2001 CSO Ultimate to 1980 CSO Ultimate
10-Year Term

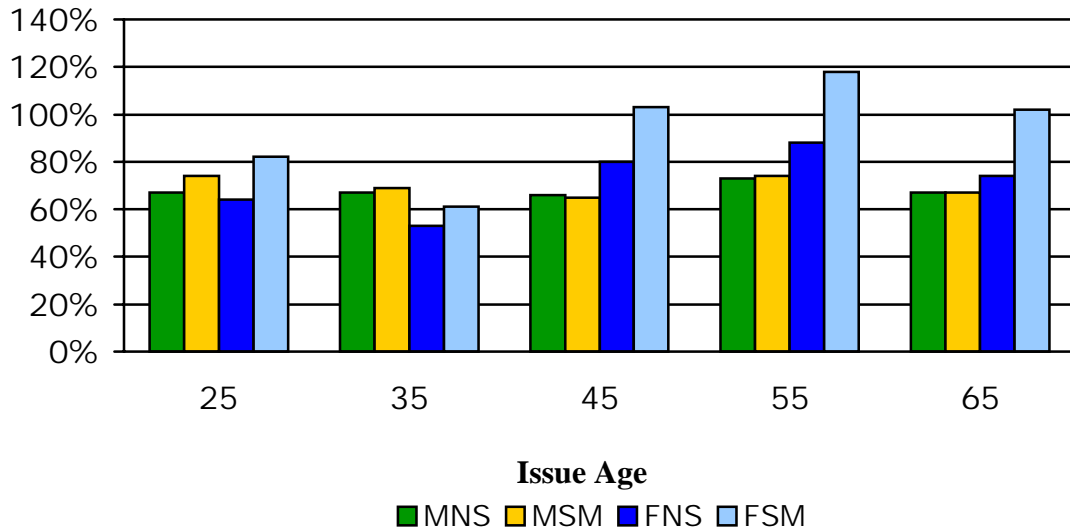


CHART 17
Present Value of Basic Reserve Increase Discounted at 7%
Ratio of 2001 CSO Ultimate to 1980 CSO Ultimate
20-Year Term

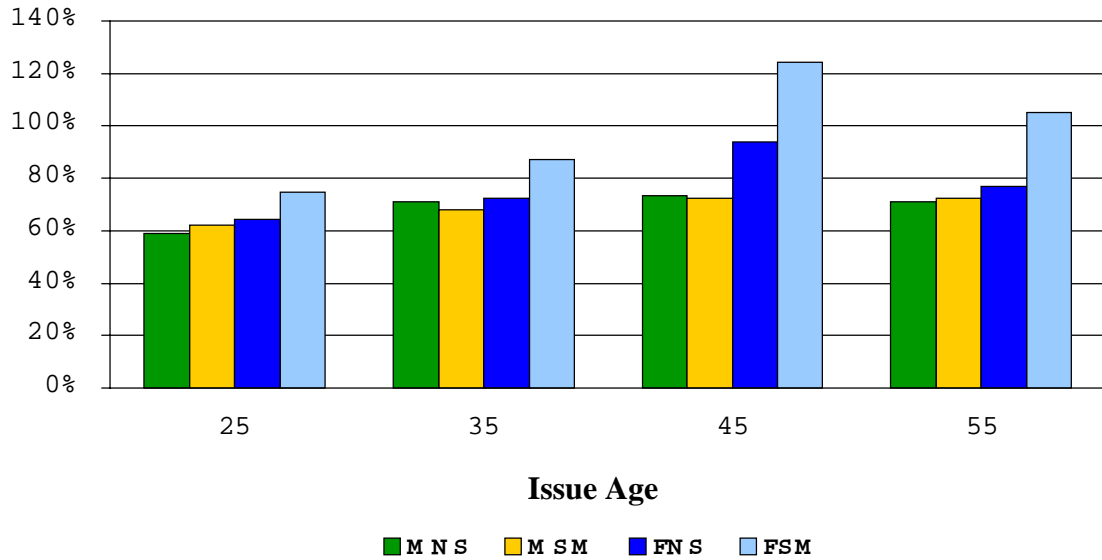


CHART 18
Present Value of Basic Reserve Increase Discounted at 7%
Ratio of 2001 CSO Ultimate to 1980 CSO Ultimate
30-Year Term

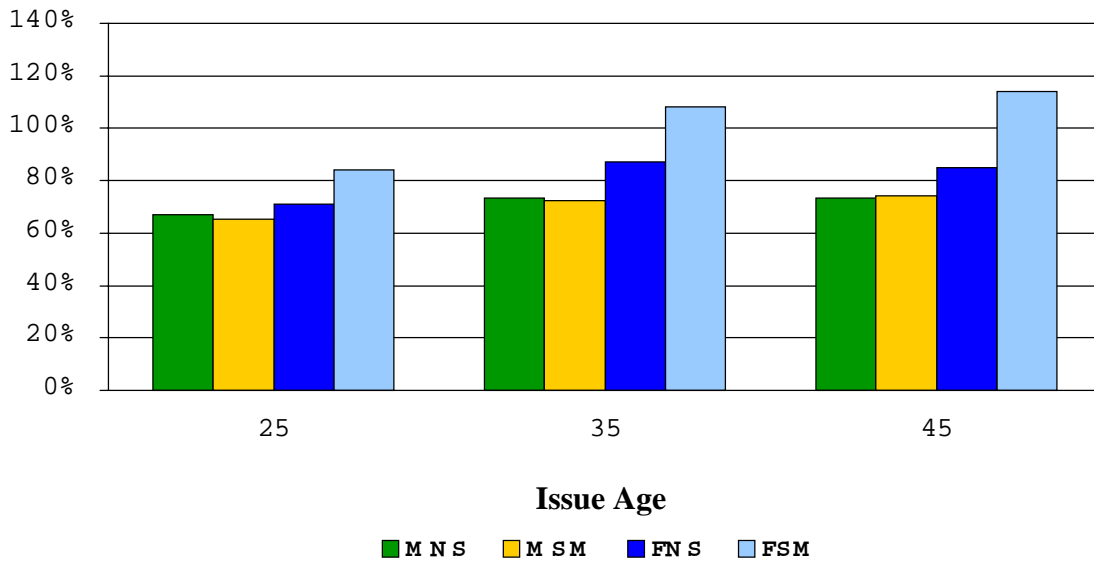


CHART 19
Impact of Deficiency Reserve Mortality
Male, Age 45, Preferred Nonsmoker

	10	20	30
Net Premium — 1980 CSO	.77	1.67	3.54
Net Premium — 2001 CSO	.85	1.69	3.11
Net Premium — Pricing @ 4.5%	.75	1.44	2.52
Net Premium — Pricing @ 12.5%	.64	1.00	1.34

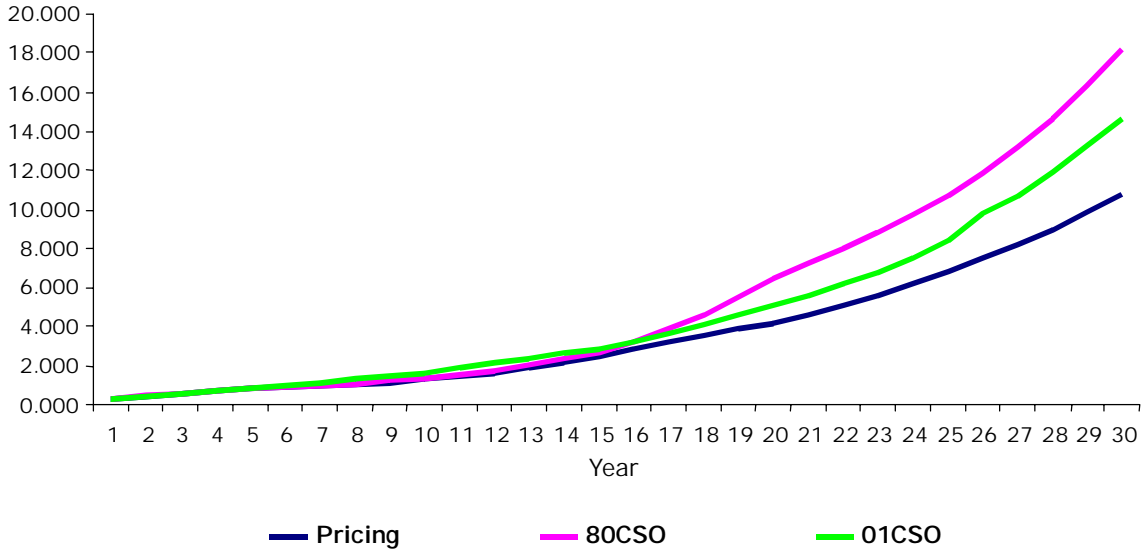


CHART 20
Impact of Deficiency Reserve Mortality
Male, Age 45, Smoker

	10	20	30
Net Premium — 1980 CSO	2.45	5.00	8.97
Net Premium — 2001 CSO	2.84	5.60	9.37
Net Premium — Pricing @ 4.5%	2.39	4.60	8.07
Net Premium — Pricing @ 12.5%	2.04	3.20	4.28

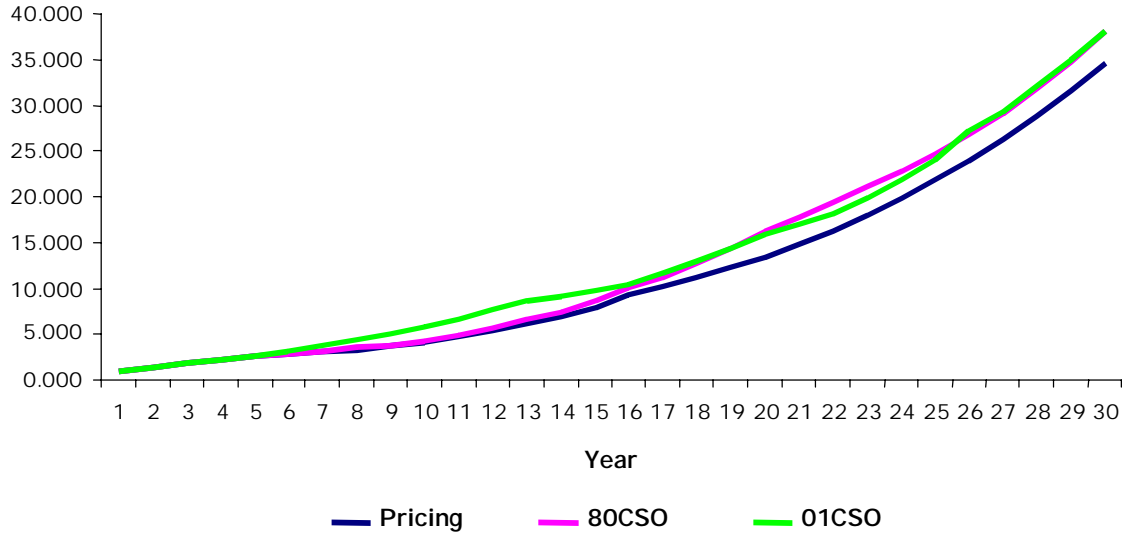


CHART 21
Impact of Deficiency Reserve Mortality
Male, Age 65, Preferred Nonsmoker

	10
Net Premium — 1980 CSO	5.72
Net Premium — 2001 CSO	4.19
Net Premium — Pricing @ 4.5%	3.88
Net Premium — Pricing @ 12.5%	3.26

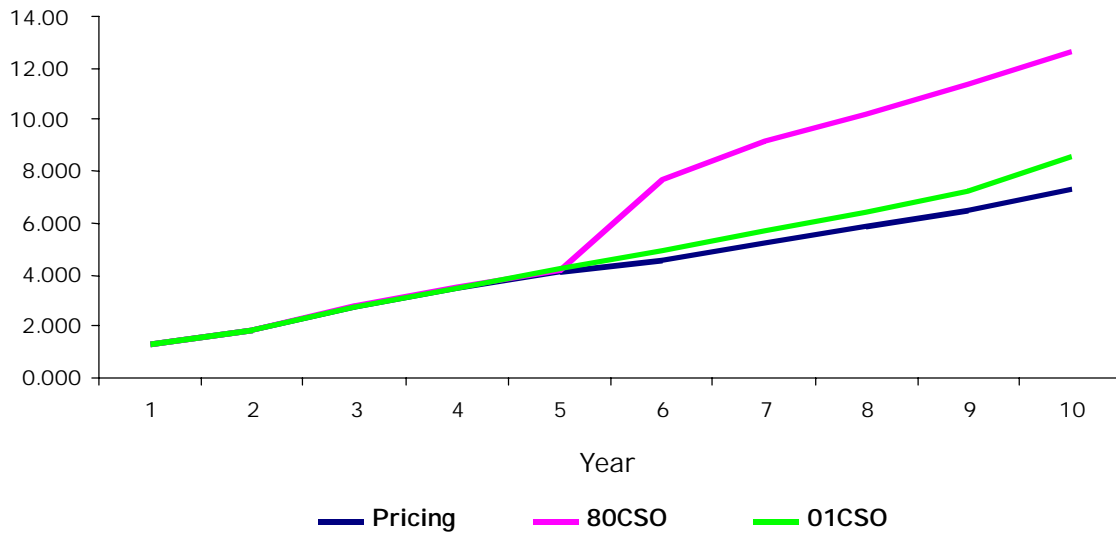


CHART 22
Impact of Deficiency Reserve Mortality
Female, Age 35, Smoker

	10	20	30
Net Premium — 1980 CSO	.82	1.45	2.30
Net Premium — 2001 CSO	.84	1.80	3.21
Net Premium — Pricing @ 4.5%	.79	1.36	2.11
Net Premium — Pricing @ 12.5%	.67	.98	1.22

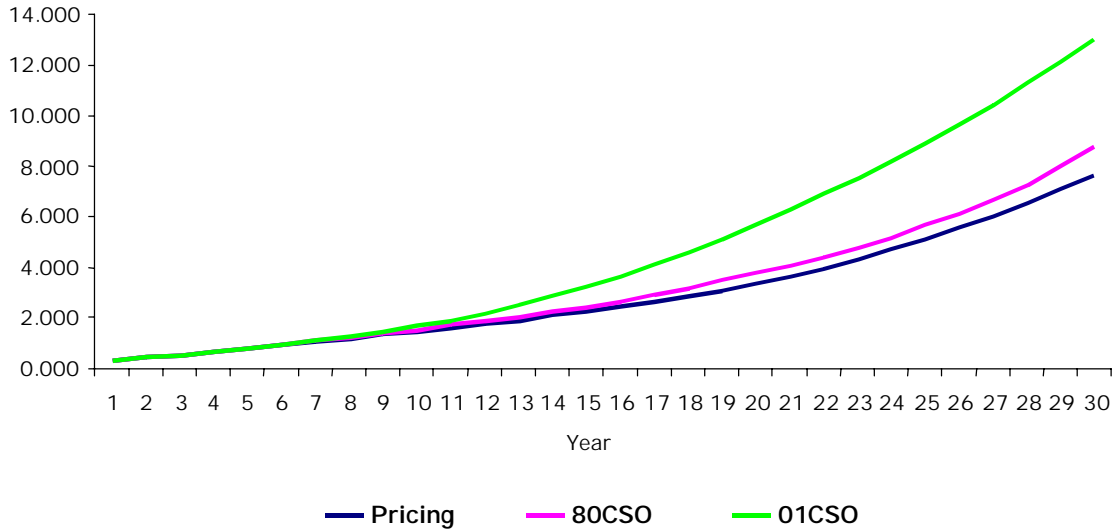


CHART 23
Segmented Terminal Reserves – Universal Life with
Level Target Premium Secondary Guarantee
2001 CSO as a Percentage of 1980 CSO
Male Preferred

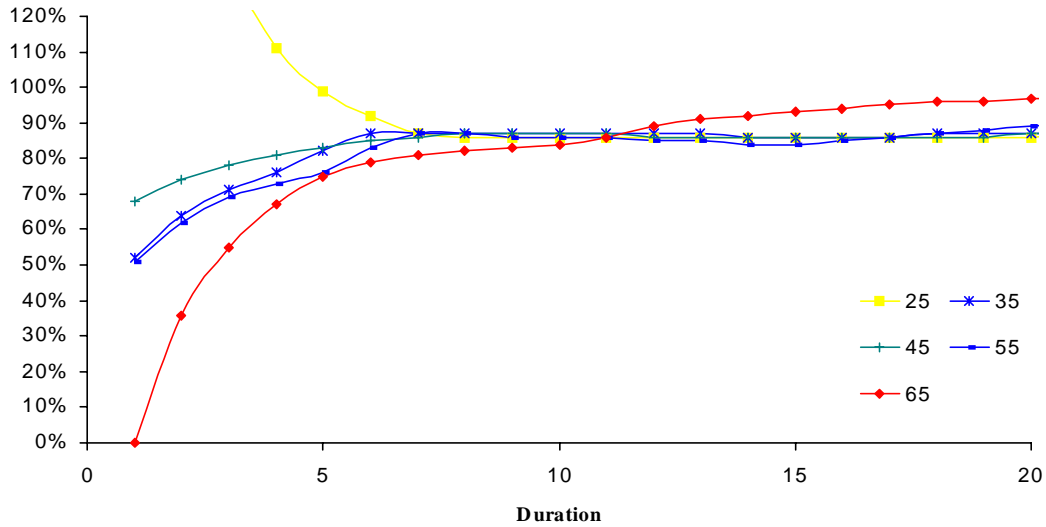


CHART 24
Segmented Terminal Reserves – Universal Life with
Level Target Premium Secondary Guarantee
2001 CSO as a Percentage of 1980 CSO
Female Preferred

