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**LONG-TERM CARE -- HAVE YOU CONSIDERED THIS?**

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Recorder: GARY L. CORLISS

- Effective tax rate on long-term-care (LTC) insurance
- Capital needs
- Rate guarantees
- Asset/liability scenarios

MR. GARY L. CORLISS: Our first speaker is Brian Reid, who is an assistant actuary at Travelers. He is responsible for individual disability and LTC pricing and product development. He has been on the NAIC advisory subcommittee supporting rate guarantee issues. That's the subject he will be discussing.

The second speaker will be Michael Welsh, assistant vice president and actuary at Aetna. He is responsible for group pricing and risk management relative to life, disability and LTC insurance.

Our third speaker, Karen Gervasoni, is the second vice president and actuary at UNUM. She is also a member of the Society of Actuaries LTC experience group.

Mary Ann Brown will wrap things up for us. She is the managing partner of the New York office of Tillinghast. She specializes in LTC insurance and currently is involved in overseeing the development of the Society of Actuaries professional actuarial specialty guide for LTC insurance.

MR. BRIAN S. REID: Have any of you seen a recent headline of the *National Underwriter*? It reads "Mandatory Noncancelable LTC Insurance – Today." No, it hasn't happened yet. But believe it or not, it is possible. As many of you may know, the NAIC has been receiving a great deal of pressure lately to pass a regulation that addresses the need for LTC rate guarantees. While there are some less extreme proposals on the table, requiring that LTC coverage be noncancelable is one of the alternatives being considered.

With regard to rate guarantees, I am going to cover three areas. First, I would like to give you some background on the NAIC rate stabilization activity, so you can understand where the possibility of rate guarantees is coming from. Second, I am going to discuss two of the proposals being considered by the NAIC, and third, I will show you the results of some sensitivity testing we did to look at the proposals' impact on profitability.

My comments on the NAIC will be very general, but I have put together some points that should cover the basic questions you may have on rate stabilization, such as:

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- What is it?
- Why is it being considered?
- Who is involved?, and
- What is currently happening?

Rate stabilization is a concept. The concept is that LTC policyholders should have some protection from large rate increases that could make their coverage unaffordable in later years when their physical condition has deteriorated, and their income is relatively fixed.

The following rate stabilization principles were developed by the Rate Stabilization Advisory Subcommittee, which was made up of regulators, insurance representatives, and consumer interest group representatives.

The principles are:

1. Reasonable rate guarantees should apply to all insureds.
2. Rate adequacy should include initial pricing adequacy, adequacy of reserves, and measures for extraordinary rate relief.
3. There should be a fair allocation of future risk between insurers and policyholders.
4. There should be a preservation of meaningful and affordable products at stable prices.

Along with those principles came a three-page list of issues that any practical rate guarantee provision would have to address. Some of the larger ones were:

1. Would it apply to in force or just new business?
2. How would it be applied to distinguish between group and individual insurance?
3. How would rate adequacy be measured?
4. How would risk be allocated fairly between insurers and policyholders?
5. What type of extraordinary rate relief would there be?

Now remember this is just a sample of the issues. I hope it's clear from these alone that developing a fair and practical solution that adheres to the principles I outlined will not be easy.

There is some anecdotal evidence that a few LTC insurers have implemented very large rate increases on their in-force policies. Given that individual LTC coverage is typically sold as level premium coverage to individuals with fixed incomes, the concept of increasing rates beyond affordability has met with a great deal of resistance. Insurers have been accused of engaging in bait and switch activities and of pricing with unreasonably high lapse rates that are achieved through large rate increases.

The players involved with the rate guarantee issue are the NAIC, consumer interest groups, insurance companies, and eventually the individual states. The consumer groups and the insurers each have fundamentally different interests, and they are both trying to influence the NAIC's decision. If you look at the heart of the issue, you'll

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see that it is a matter of who should take the risk inherent in pricing LTC insurance. Consumer interest groups feel the insurers should take it, and the insurers have thus far been passing it on to the consumers due to the newness of the market. The consumer groups, however, do seem to be having a bit more success, since the advisory subcommittee I just spoke of was disbanded because of accusations that there has been too much insurer influence on the process already.

The other players that will eventually be involved are the individual states. If the NAIC adds some type of rate guarantee provision to the LTC model regulation, the states will have to decide whether or not to adopt the provision and, if they do, whether to adopt it as is or in some modified version. It's at that point that the insurers will have to decide whether to comply with the regulation or stop selling in the states that adopt the provision in any form the insurers consider too risky.

Right now, there are two subcommittees of the LTC Task Force, one working on mandated nonforfeiture benefits and the other on rate stabilization. As I understand it, the subcommittee on rate stabilization is working with the proposals that have been offered by the consumer groups and the insurers, and trying to bring one or more of them to draft form for a vote at the task force level. If a vote is favorable, that proposal will then be voted by the B committee, and if it's passed, the provision will be added to the model regulation. As we can never be sure of the status of an NAIC proposal until it is adopted, it's impossible to say what will happen or when, but the pressure for some type of action is increasing.

Now let's get into two of the proposals that are being considered, and how they could impact the profitability of LTC. One I'll call the consumer proposal; the other the insurer proposal.

I'll start with the consumer proposal since it is the most extreme. It's the ultimate in protection for the consumer, and the ultimate in risk for the insurer, in other words noncancelable coverage, and it is being given serious consideration. In addition to the issues I mentioned earlier, noncancelable raises a special issue, that of the minimum loss ratio. Would the minimum loss ratio be lowered if noncancelable coverage became mandatory, and if so, what would it be lowered to? If you think of noncancelable disability insurance, the minimum is 50%, but that is an industry with a very long history, and more than enough relevant data to price for the noncancelable risk. It would stand to actuarial reason that the noncancelable LTC should be allowed a minimum loss ratio due to the uncertainty and pricing risk involved. The question is, though, will actuarial reason be a factor in the decision reached by the NAIC? Even though I don't realistically expect a minimum loss ratio of 50% or lower if noncancelable is mandated, I do hope that there would be some type of loss ratio relief offered.

For my sensitivity testing, I assumed the worst, that is, there would be no relief. The testing (Table 1) was done on an individual pricing model, so I will have to ask the group folks to make the crossover from individual to group on their own. The profit measure I used was a statutory after-tax return on investment (ROI).

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TABLE 1  
Sensitivity Test

Baseline ROI	15%
Termination Rates (Lapse and Death)	10
Decrease 50% All Years Asset Earnings Drop from 8% to 4%	6
Claim Costs Increase 10% Annually Years 1-5	5
6% Asset Earnings Rate and 25% Increase in All Claim Costs	4
6% Asset Earnings Rate and 50% Decrease in Terminations	1
25% Increase in All Claim Costs and 50% Decrease in Terminations	0

As you will be hearing comments later on asset issues, I will just spend a minute trying to add some feasibility to the other two scenarios.

These are possible reasons for lower terminations (lapse and death):

- Move to mandated renewal compensation on replacements.
- Leveling of commissions giving agents incentive to preserve business.
- Greater acceptance of private LTC as good value.
- Medical advances that sustain life length but not life quality.

These are possible reasons for higher claims:

- Data used in pricing found to be poor representation of insured risks.
- Increase in nursing home and community based care costs beyond pricing assumptions.
- Increased availability and corresponding utilization of alternative care facilities.
- Medical advances sustain life length but not life quality.

That's it for the noncancelable scenario. Given the uncertainty in pricing LTC, the scenarios I've tested are reasonable. These examples should demonstrate that without the ability to raise rates, even reasonable adverse deviations can drive profits to unacceptable levels.

As an alternative to the noncancelable proposal, there has been a proposal put forth by six of the major LTC insurers. It is a hybrid of some of the other rate guarantee alternatives that have been discussed.

The insurer proposal calls for an initial 3-year rate guarantee, a subsequent 2-year rate guarantee following any rate increase, and a rate increase cap of 10% per year for those over age 75, who have had their policies for 10 years or more. The proposal also calls for a 2-year "no marketing penalty" for insurers whose rate increases exceed 50% in a 3-year period, and a mandated offer of reduced benefits to allow the insured to keep his or her policy while maintaining the same premium level. The proposal does, however, give the commissioner authority to grant extraordinary rate relief under drastic situations beyond the control of the insurer. Finally, this is only proposed to apply to new business.

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For this proposal (Table 2) I assumed the same experience scenarios, but now I have the ability to raise rates. I assumed that I would be able to raise rates 15% in years 4 and 7, and 10% in years 10 and 13. These numbers should seem reasonable from a state approval and administrative standpoint. There is a bit more room in the proposal, but I didn't want to push it.

TABLE 2

Baseline ROI	15%
Termination Rates Decrease 50% All Years	20
Asset Earnings from 8% to 4%	14
Claim Costs Increase 10% Annually Years 1-5	9
6% Asset Earnings Rate and 25% Increase in All Claim Costs	11
6% Asset Earnings Rate and 50% Decrease in Terminations	15
25% Increase in All Claim Costs and 50% Decrease in Terminations	11

Although some of the scenarios still bring a reduction in profits, this proposal is not as risky as noncancelable. To keep the testing comparable and simple, I did not model any cumulative antiselection in these scenarios, so the actual results would be worse than this. We should all keep that in mind, even in today's guaranteed renewable environment.

Now those are the only two proposals I modeled, but I want to point out that the insurer proposal is made up of many of the individual solutions that were discussed in the early stages of the rate guarantee issue. Initial rate guarantees, mandatory buy-down, and rate increase caps are all options that were initially proposed as stand-alone solutions to the problem, and as a matter of fact, a level 5% annual rate increase cap was very seriously considered for some time. I mention this because it is possible that the NAIC could take action in some modified combination of the provisions in the insurer proposal, and maybe even add a few of its own.

In closing, I would like to say that the problem of large rate increases on LTC policies needs to be addressed, and I am hopeful that the NAIC will do so in a responsible manner. However, the solution needs to be "win-win" for all parties. The consumer noncancelable solution is totally one-sided, and would be disastrous for insurers and consumers. The insurer proposal is tempered, but it does provide a chance of success for everyone. Hopefully, a solution close to the insurer model will be considered appropriate and adopted by the NAIC. In keeping with the theme of the panel title -- "Have you considered this?" -- I've tried to make you more aware of the possibility of mandated rate guarantees, and I've tried to help you think through how rate guarantees could add even more risk to the pricing and management of LTC.

MR. MICHAEL WELSH: I'd like to discuss some issues surrounding investment strategy and asset management that the actuary should consider when designing, pricing, and managing an LTC product.

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The LTC insurance market is relatively young as compared to other more traditional insurance products. Products and understanding of the risk are still evolving. Compounded by the lack of credible pricing data, the unsettled regulatory environment -- both at the federal and state levels -- and the long-term nature of the risk present the actuary with a challenging task.

Due to the long-term nature of LTC and the level premium concept, sizable reserves to support future claim payments will accumulate contrasted to more familiar health insurance products that do not involve the accumulation of reserves. In many cases health actuaries are faced with a new pricing dimension that our fellow actuaries in pensions and annuities deal with regularly.

LTC is not commonly viewed as an asset-based product although we are seeing an increased sophistication regarding LTC among group sponsors. Many requests for proposals inquire about our financial ratings, NAIC risk-based capital requirements, LTC investment strategy, and the assets supporting our LTC product. In fact, one prospective customer asked if we would develop a separate LTC investment portfolio.

Effective asset management will act to provide a lower cost to the consumer, as well as a primary source of profit for the insurer. The premium cost sensitivity to changes in assumed investment return is significant. For example, at issue age 40, a 1% change in the interest rate assumption would produce an 8% change in the premium cost. The impact obviously declines with age to 4% at issue age 70. Therefore, it is important to understand the dynamics of the product and to develop an investment strategy that fits the dynamics.

Plan design and product dynamics play a significant role in defining the growth in reserves and assets. Factors, such as issue age, lapse rates, automatic inflation protection, and nonforfeiture provisions, if any, can have an impact on the pattern and size of reserves. The following charts illustrate this. I want to caution that these are only illustrations and are the result of many assumptions. Pricing factors such as claim incidence, claim duration, and mortality assumed by the actuary will produce different results. These illustrations show the relative magnitudes and patterns.

All of my illustrations examine a cohort of 10,000 insured lives by issue age. I have assumed a certain level of incidence and claim duration rates that are not necessarily indicative of what my company uses for pricing. The reserves are on a net level premium basis. The group and individual products target different age groups. Generally, the group market aims for active employees resulting in an average issue age of 40-45. The average issue age in the individual market, however, is 60-65. Issue ages 40 and 60 are used in the illustrations to highlight the differences in the group and individual markets.

Charts 1 and 2 compare the pattern of premiums and claims for issue ages 40 and 60, respectively. These illustrations assume a rather low rate of lapse of 5% in the first year and 3% thereafter. The premium level is much lower for a 40-year-old since the period of prefunding is much longer.

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CHART 1  
Issue Age 40 Premium versus Claims  
(Lapse - 5%/3% thereafter)

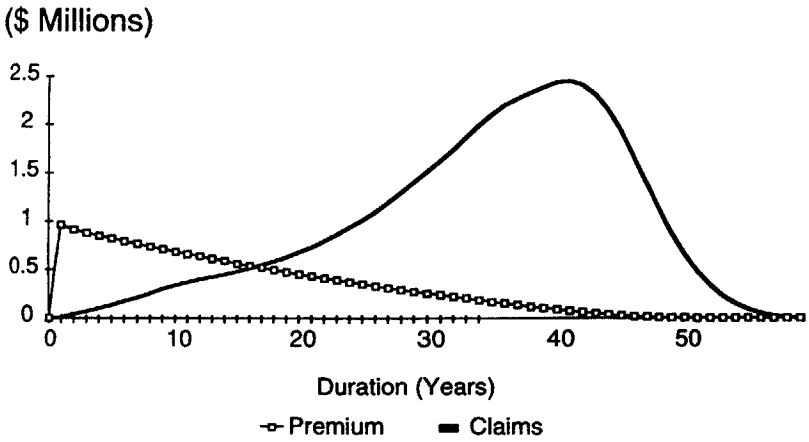


CHART 2  
Issue Age 60 Premium versus Claims  
(Lapse - 5%/3% thereafter)

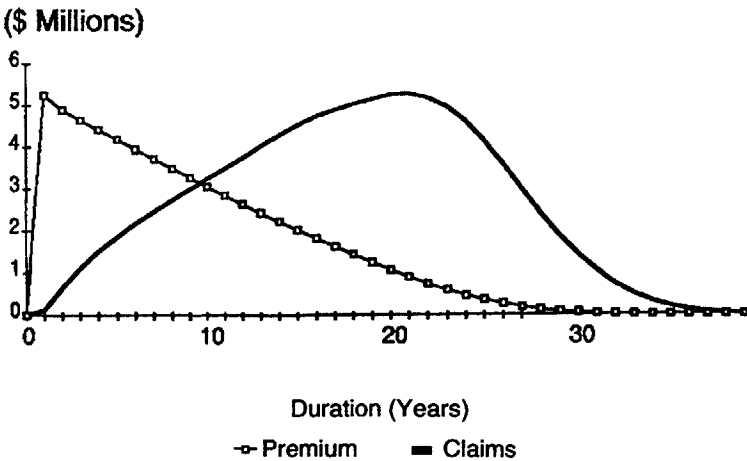
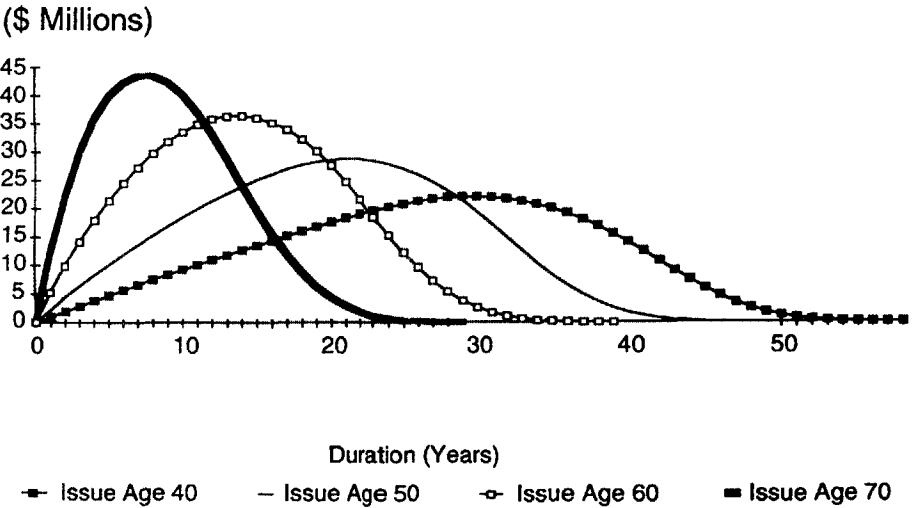


Chart 3 compares the growth in reserves by issue age assuming the same level of lapses as above with no nonforfeiture benefits. Older issue ages show a greater accumulation of reserves and supporting assets, which is consistent with the fact that LTC is an old-age benefit, resulting in a longer period of prefunding at younger issue ages.

CHART 3  
Growth In Reserves By Issue Age  
(Lapse - 5%/3% thereafter)



Charts 4 and 5 illustrate the effect of various lapse rates on asset growth for issue ages 40 and 60 without nonforfeiture. While the pattern is similar, the level of assets is significantly lower when a higher level of lapses is assumed (or realized). These lapse assumptions are the same as those used by the NAIC LTC Nonforfeiture Ad Hoc Actuarial Group. The higher the lapse assumption with no nonforfeiture, the lower the claim stream and, therefore, the lower the premium rate.

Charts 6 and 7 compare asset growth with and without nonforfeiture benefits. This is an interesting illustration in light of the recent NAIC adoption of mandated nonforfeiture benefits in the LTC model regulation. The addition of nonforfeiture benefits not only increases cost but also increases the assets. The nonforfeiture benefit illustrated here releases the full reserve at lapse to purchase a reduced paid-up benefit. Really this represents the maximum benefit. Generally nonforfeiture benefits will not be so generous. Most nonforfeiture benefits will fall somewhere in between the with and without nonforfeiture curves.



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CHART 4  
Issue Age 40 -- Effect of Various Lapse Rates

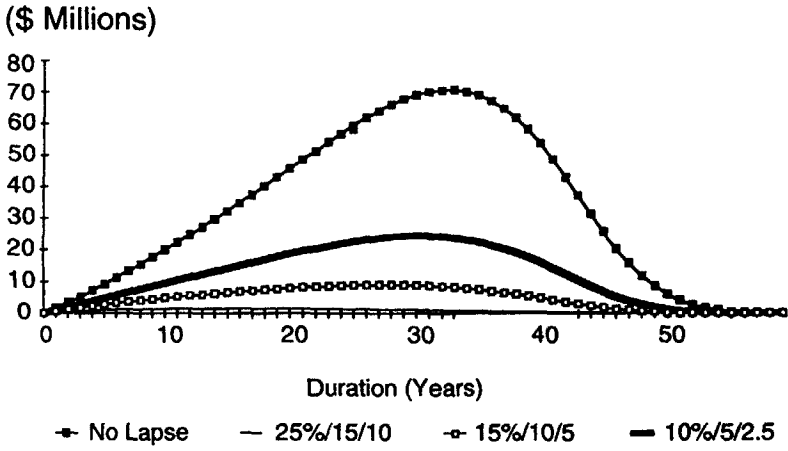


CHART 5  
Issue Age 60 -- Effect of Various Lapse Rates

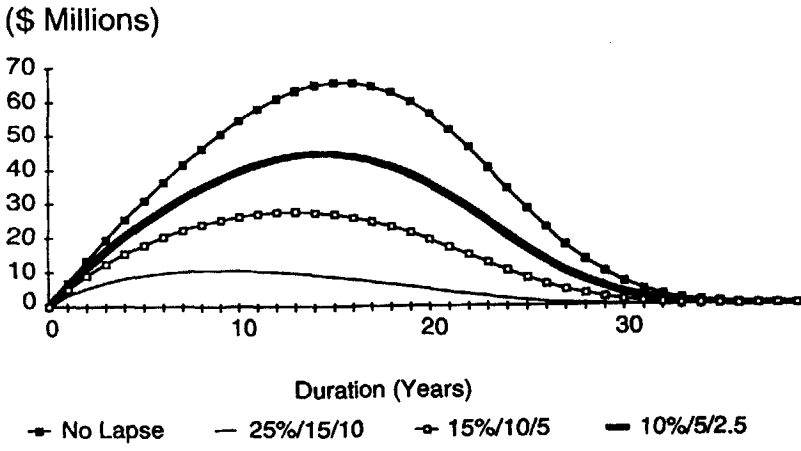


CHART 6  
Issue Age 40 – With Nonforfeiture versus Without Nonforfeiture  
(Lapse – 15%/10/5 thereafter)

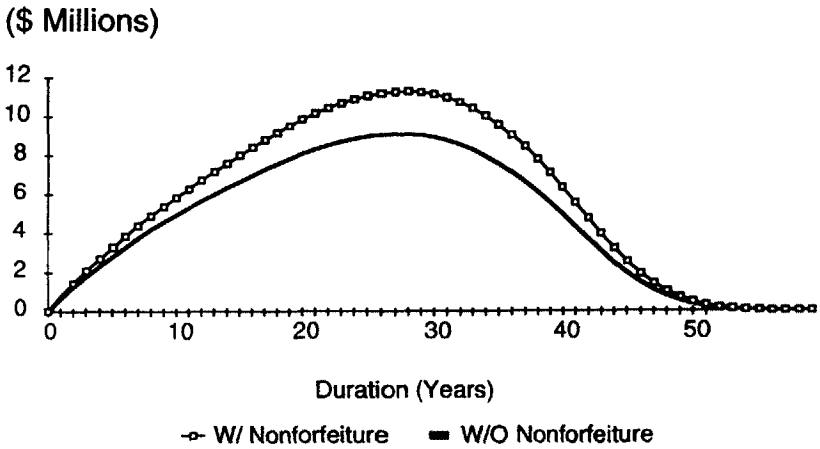
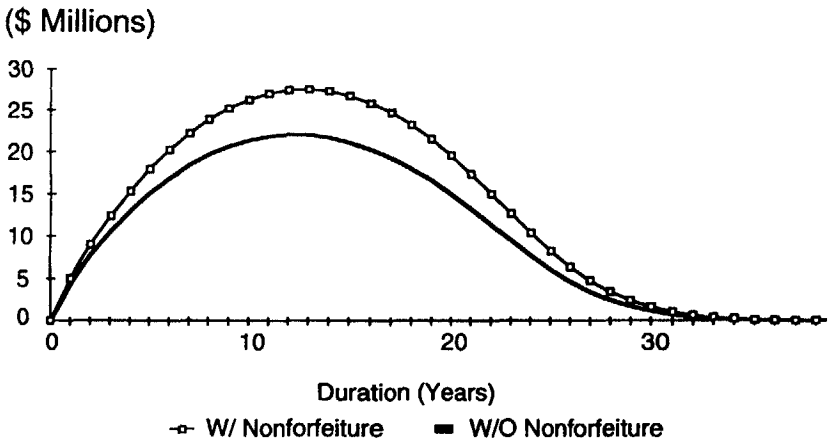


CHART 7  
Issue Age 60 – With Nonforfeiture versus Without Nonforfeiture  
(Lapse – 15%/10/5 thereafter)



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Charts 8 and 9 illustrate the impact of adding inflation protection, where the maximum benefit amounts increase by 3% per year from date of issue. Since most of the benefits will be paid at older ages, the impact of compounding is significant, especially for the younger issue ages.

CHART 8  
Issue Age 40 – Inflation Protection  
(Lapse – 5%/3% thereafter)

(\$ Millions)

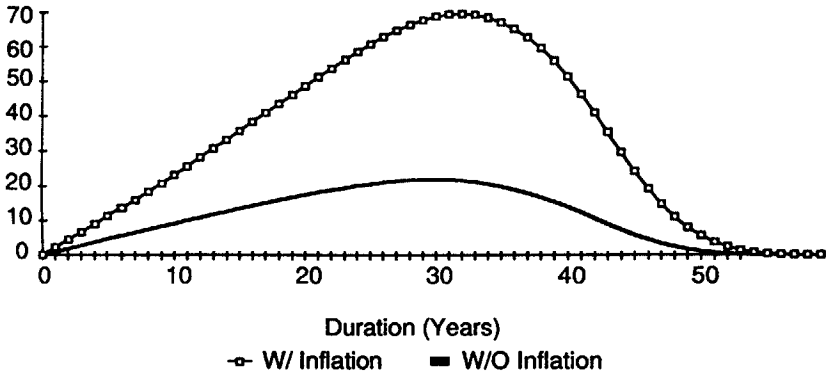
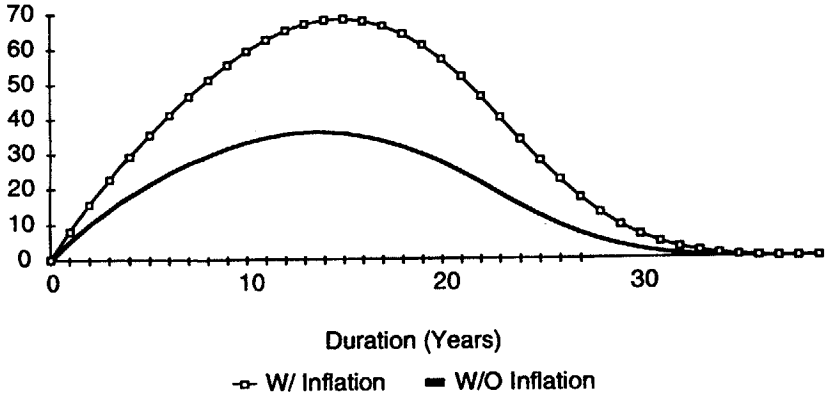


CHART 9  
Issue Age 60 – Inflation Protection  
(Lapse – 5%/3% thereafter)

(\$ Millions)



As we have just seen, plan design and features produce very different patterns of growth and levels of assets supporting the LTC benefits. The actuary needs to carefully understand the dynamics of plan design in developing an investment strategy.

There are other factors that need to be considered also: Lack of Credible Pricing Data – As I mentioned earlier, there is a lack of credible pricing data. As we gain more experience over the next few years, our perception of the risk will undoubtedly change. This will not only impact price but also will change the level of reserves necessary to support future benefits. Any change in pricing should also trigger a reassessment of investment strategy to ensure that the strategy is in line with the new outlook on the emergence of future claims. The Society of Actuaries is currently working on an LTC experience study.

Future Changes in LTC Risk – Even once we have a credible base of experience, other dynamics can change the level or timing of claim incidence. An increase in available services, like the growth in the number of nursing homes, may result in increased incidence. This is similar to what we have seen in the medical benefits area. On the other hand, a breakthrough on diseases affecting the aged, such as a cure for Alzheimer's, could reduce or delay eventual claim costs. Other medical developments may keep a person with a life threatening disease alive longer, which would tend to increase claim duration.

Both the uncertainty of the risk and the fact that the risk could change require a certain level of asset liquidity to ensure that enough cash is available at every point in time to meet possible claim levels. The actuary needs to assess the potential volatility and match asset cash flows with the potential range of cash needs. There needs to be a liquidity range around expected claims.

Unsettled Regulatory Environment – The regulatory environment is unsettled, and that situation will probably continue for some time. As the federal government debates health care reform, some attention will be directed toward a federal program to cover LTC needs. Given the projected costs it is unlikely the government will be able to have a publicly funded program near term, but there is always the risk that either a total federal takeover or the adoption of stringent mandates could ruin the business for the private market sometime in the future. One possible scenario is that there is a federal takeover and that reserves under insurance policies have to be returned to the insureds. In this potential scenario, having all assets locked up in nonmarketable securities would prove costly to the insurer.

Within the NAIC there has been much discussion recently with regard to premium rate increase limitations. It is very likely that some form of limitation on rate increases will eventually be adopted. This may mean that the ability of the carrier to raise rates due to less than expected investment earnings may be limited. The carrier needs to balance the desire to keep premiums affordable for the consumer with the need for conservatism to ensure that actual long-term investment returns equal or exceed those priced for.

Disintermediation Risks -- The disintermediation risk on LTC is much different than with cash value life insurance and annuities. LTC plans do not, at least to my

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knowledge, offer a cash value or policy loan provision. Therefore, individuals are not as likely to antiselect against the insurer during periods of volatile interest rates as they might be with other cash-value-type products. Payments under an LTC policy are driven only by the need for LTC services, not by the level of interest rates. Therefore, LTC cash flows are not interest sensitive. This reduces the need for liquidity to accommodate withdrawals or to keep current crediting rates close to current market rates.

However, a volatile interest rate environment could impact the cost of currently issued products, leaving the insurer with an older portfolio of products that is not as competitive, thus increasing the risk of lapse. Alternatively, actual investment return below pricing assumptions would result in an inadequately priced product.

In the group market, the employer sponsor generally wants to reserve the right to change carriers in the future. To alleviate administrative issues and to get the best arrangement for all employees, employers (especially larger employers) will want any accumulated reserves to be moved to the new carrier. Since the group market is relatively new, we have not seen much activity in this area, but we need to be prepared for the movement of reserves and the resulting liquidation of assets. This points to the need to have some level of liquidity or marketability in the asset portfolio. It may be appropriate to have the investment strategy consistent with the market value formula that will be used to determine the amount of the transfer.

Asset Duration – From the charts presented earlier, it is easy to conclude that the duration of the claim stream is quite long. For example, for a 40-year-old the duration is close to 30; for a 70-year-old the duration is near 10. Again I caution you that these are based on a certain set of assumptions; other actuaries may arrive at different numbers, but the relative magnitude should be the same. This presents an interesting challenge since there are really no traditional assets that can match those durations, especially at the younger issue ages.

The major risk from an investment strategy perspective is that the actual investment results over the long term fall short of those assumed in pricing. The long tail of the liabilities tends to aggravate that risk since it is difficult to find the types of asset to completely match the long-term cash flow.

The investment strategy must also balance the opportunity for higher yields available from long, generally less marketable assets with the need for liquidity to cover both expected and unexpected claim payments and patterns, and the possibility of a group policy transfer.

Due to the very long-term nature of the liabilities, traditional fixed-income assets may need to be supplemented with equity holdings such as common stock or real estate. Historically common stocks have outperformed fixed-income investments over a long time period. The use of common stocks could be effective in increasing the total return of the portfolio over time. Real estate could be used as an effective diversification tool. Of course, the insurer would need the capacity to withstand the fluctuations in value. Treasury strips or zero-coupon Treasuries would be effective in lengthening the duration of the asset portfolio. The suggestion of real estate as a viable investment may seem inappropriate given the current state of the real estate

market. We are experiencing the low end of the cycle, and over the long run, real estate could still be a viable investment.

The ideal portfolio would have a large portion of higher yielding long private bonds and mortgages, which add to investment return. A large portion of high quality publicly traded bonds would add marketability yet still produce attractive long returns. A core of shorter term assets would add marketability to handle changes in the underlying LTC risk and claim patterns. A small role for other investments such as equities and Treasury strips would help the duration match.

An asset strategy that involves multiple asset classes and characteristics requires a high level of expertise. One must determine the risk tolerance that will be influenced by the decision maker's perception of risk among the various asset classes including investment horizon, market condition, and economic cycles. A sophisticated model to test various scenarios is required to determine how assets will be tactically allocated. Results need to be monitored and strategy adjusted given the then current market conditions. This is not a simple process and probably only applicable for a larger portfolio.

MS. KAREN L. GERVASONI: Insurance companies hold capital (surplus) for a number of reasons:

- The purpose of surplus is to protect against insolvency. At UNUM, our target is capital sufficient to ensure that the probability of ruin is less than 1% over the planning period.
- Regulators have historically set minimum capital requirements. The introduction of risk-based capital (RBC) concepts recognizes that such an approach was insufficient, and attempts to estimate capital needed to cover the risks inherent in the underlying business.
- Ratings from organizations such as Best's, Moody's, and Standard & Poor's (S&P) are important marketing and financial (borrowing) considerations.
- Capital forms the basis for evaluating a product's performance. It's important that measurement criteria reflect the worth of the business, or a company could find itself in severe financial straits.

I'd like to focus briefly on external requirements, and then go on to discuss in more detail UNUM's internal approach to capital allocation.

RBC has been a hot topic recently. The RBC C-2 risk formula, which applies to most of today's LTC products, is the one for guaranteed renewable disability business: 25% of premium for the first \$50 million of business, and 15% of premium for any excess (prior to the covariance calculation). This should be considered the floor when evaluating your capital needs; most companies will attempt to hold capital in excess of RBC requirements.

No industry formula can accurately reflect the risk for every company. So at UNUM, we've developed an internal allocation methodology. We attempt to identify a reasonably unlikely negative scenario and quantify the capital needed to protect against insolvency in such a situation. The process begins by identifying the risk factors inherent in a particular product.

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C-1 risk is assessed based on the assets backing reserves. Investments are segmented by product, and NAIC RBC formulas are used.

For C-2 risk, our approach is more detailed than the RBC formulas. For LTC, for example, the following sources of pricing risk have been identified:

- a. statistical fluctuation in incidence;
- b. nonrandom incidence fluctuation, due to unanticipated holes in product design or assessment of eligibility for claims;
- c. statistical fluctuation in recovery patterns;
- d. nonrandom fluctuation in recoveries, due perhaps to unexpected issues in benefit administration;
- e. expense variance from pricing assumptions;
- f. lower investment income than expected (reinvestment risk);
- g. medical/technological advances that might extend life expectancy but not necessarily improve the quality of life;
- h. effects brought on by the economic environment.

In determining these factors, we attempt to analyze actual data whenever possible. My product – LTC reinsurance – was a new line of business in 1991. We had no data to evaluate, so we had to take a different approach. We looked at the factors other products used and tried to judge where LTC would fall in relation to them. For example, consider the C-2a risk: statistical fluctuation in incidence. We're attempting to evaluate the volatility in number of claims incurred and the potential associated cost. We look at this risk in terms of an expected loss ratio, and we define it as a percentage of premium. The question is, what percentage?

We view LTC – including the indemnity model, which is what we reinsure – as a type of disability coverage. That is, the inability to perform a minimum number of activities of daily living, and the continuation of claim payments as long as that condition persists (whether or not an additional requirement of professional expense incurred is superimposed) makes the structure of this product similar to disability. So we looked at the factors used for group long-term disability and those for noncancelable disability insurance and compared the risk for this specific C-2a factor.

A first consideration was that LTC is a new product, so the block of business will be smaller than both disability insurance and LTC. Fluctuation should be greater, so the factor should be higher than either of the LTD or disability insurance factors.

But LTC is guaranteed renewable, so premium rates can be increased if necessary (presumably!). This should mitigate the risk of loss ratio fluctuation, and argues for a lower risk factor than noncancelable disability insurance.

We also have to consider that we're talking about reinsurance in this case. We don't have control over underwriting or benefit administration, and such lack of control suggests a higher risk factor. On the other hand, we have confidence in our client companies. They have strong assessment programs administered by a very capable third party. That should decrease the risk factor.

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And that's how the process works when we don't have any data: we were able to utilize the analysis that had been performed for other lines of business and build upon our knowledge base.

As a check, we asked ourselves the question, how much worse could incidence get before our client companies would raise rates? Some treaties may incorporate clauses protecting the reinsurer; that should be taken into consideration. If you're working with direct business, the factor might be chosen based on an assessment of management's risk tolerance levels, and the company's ability to rerate in light of the competitive and regulatory environment.

The C-3 risk – disintermediation – is assessed using standard asset/liability analysis and cash-flow-testing techniques. This risk is currently assumed negligible for LTC, though certain nonforfeiture benefits may require reevaluation.

In evaluating C-4 risk, we identify the major hazards specific to a line of business: potential regulatory constraints that may limit profit, national health care, tax policy, litigation, general mismanagement (which, of course, is zero at your company and at mine.) A factor is then selected judgmentally.

After all of the above factors are determined, they are applied to a relevant historical period, and covariance is assessed. Profit is then subtracted, since profit would provide the first cushion against insolvency. The resulting amounts are then regressed against premium and reserves to produce a simplified formula.

After formulas are determined for all products, they are reviewed in relation to each other. If a formula seems out of proportion with respect to risks in other lines of business, further review and analysis is completed to bring it into line.

Finally, the required capital produced by these formulas for all product lines is summed and compared to the target capital management wants to hold. Our current formulas meet our total target.

At UNUM, we use several criteria to measure financial performance. Statutory capital forms the basis of a number of them.

Internal rate of return on free cash flow – that is, monies available from statutory gain after capital requirements are met – is used when developing a new product or evaluating a proposed initiative. (Gain should include net investment income (NII) on assets backing capital.)

ROE is another (shorter-term) measure. Its denominator, GAAP equity, is also based on statutory capital, with GAAP adjustments specific to that line of business added. GAAP adjustments would include reserve revaluation, deferred acquisition cost (DAC), deferred taxes, etc.

Required capital, then, forms the basis of profitability measurement. It's impossible to know the "correct" capital – or even if such a "correct" number exists – to hold for any given product at any given time. Relative equity across products is the objective of our allocation. Statistical analysis, judgment, and review for reasonableness are the



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main steps in the negotiation process between business units and the corporate finance department. Consistency is crucial.

Today's competitive environment requires us to really understand product profitability. It's not good enough anymore to just look at pretax profit margins. Especially with LTC, tax costs are significant. Improper conclusions will be drawn if the cost of capital is ignored. As actuaries, it's our responsibility to provide management with the best information possible – information they need to make sound business decisions.

MS. MARY ANN BROWN: LTC has some unique tax issues. First, there are many questions to answer in order to define the ingredients of an "effective" tax rate.

One of the biggest contributors to LTC taxes is the income on the active life reserve. The size and timing of this reserve impacts income and therefore taxes. So, whether we use pricing or valuation-type morbidity, mortality and/or lapses make a difference. Whether the statutory active life reserve is one-year or two-years preliminary term also makes a big difference. This is because the tax reserve methodology is contained in the tax code (although it is hard to find). Unlike other products, LTC must use two-year preliminary term, not the reserve basis adopted by a majority of the states. Unfortunately, the NAIC model specifies one-year preliminary term for statutory reserves, so we are painted in a corner on this one, I hope temporarily. I (and others) have worked to persuade the actuarial task force to allow two-year preliminary term for the NAIC statutory reserves (so far, unsuccessfully) justified by high first-year expenses exceeding one premium. This mostly applies to individually underwritten high first-year commission products, although I've seen some group carriers with LTC marketing, enrollment and administrative expenses much higher per policy than on other group products.

I know of a few companies that have decided to approach the IRS but not yet enough to effect a change. I hope more of the LTC industry will become involved in this effort.

One area that we cannot change is the adjusted federal interest rate (AFIR) used for tax reserves, expected to be 8.1% and 8% for 1993 and 1994, respectively. The difference between 8% and the dynamic statutory rate of 5% has a significant impact on taxes due to the large income and duration of these reserves. As interest rates come down, this is hitting us harder (8% versus 5% has a bigger impact than the former year's 8.4% versus 5.5%). Whether a GAAP or statutory basis is used makes a difference, mostly because GAAP reserves are smaller and closer to the corresponding tax reserves.

The profit pattern depending on the discount rate used affects the present value of taxes. Usually a book loss occurs in the first year or two on individual business due to front-loaded commissions and LTC underwriting. But, on some group and level commission or guaranteed issue products, profits can occur the first year. In this situation, higher discount rates can greatly increase the effective tax rates (which are a function of present value of profits divided by present value of gross premiums). Also, whether a company uses GAAP or statutory income has a significant impact on tax rates. This is because GAAP income is closer to taxable income than is statutory.

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Generally, GAAP tax rates seem to be 5-10% less than statutory in the financial projections we used.

Another tax rate component is due to the cost of target surplus. As an example, if a company uses 7% as an earned rate, the effective after-tax earned rate is 4.6%. Then if a company uses a 7% discount rate, the tax rate is only 34% of the earnings on target surplus. But if this is a company that views the cost of capital by discounting at a higher rate, such as 12%, we then see a much greater cost associated with allocating the target surplus to this line of business. In this example, 75% of the present value of target surplus is the cost: 60% due to the discount rate differential and another 15% due to tax. Of course, this is not just for LTC; it is true for all products' target surplus allocations.

But, LTC has a relatively steep target surplus allocation. Assume we have \$2.5 million of premium. The formula here is 25% premium plus 2% of assets (this varies by type of asset) and 5% of claim reserves. This formula is for guaranteed renewable LTC products (Table 3).

TABLE 3  
Cost of Target Surplus Example

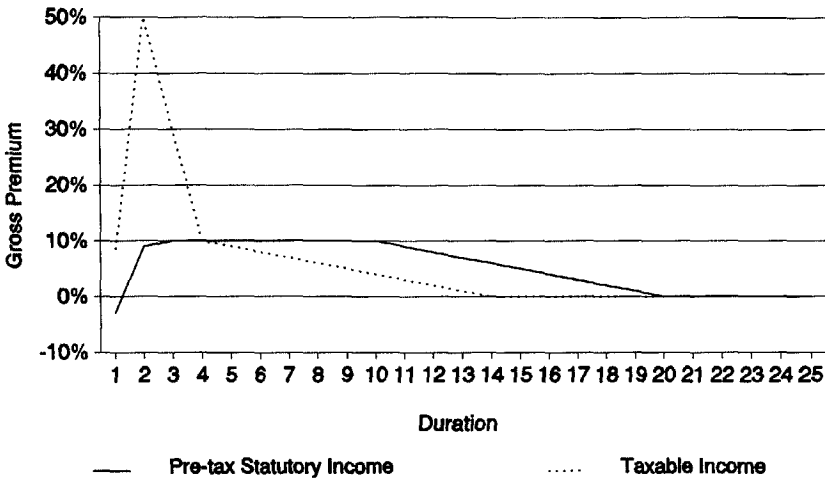
Earn:	7%	
After tax:	7%(1-0.34) = 4.6%	
Discount:	12%	
If discounted at earned rate, cost equals zero.		
	10 years	20 years
Before tax: $1 - \left( \frac{1.070}{1.120} \right)^n$	37%	60%
After tax: $1 - \left( \frac{1.046}{1.120} \right)^n$	50	75
Tax Cost	13%	15%
Premium:	\$2.5 million (2,000 policies)	
Target surplus:	25% premium + 2% assets + 5% claim reserves = \$1 million	
20-year cost before tax:	\$600,000	
20-year cost after tax:	\$750,000	

I recently ran a sensitivity test for a client to show the impact if noncancelable LTC rates were required: the premium component of the formula goes up to 35% (due to the additional C-2 risk). Of course, the premiums would also have to go up. But you can imagine the spiral of increasing premiums that would be necessary just to cover this extra target surplus cost (on top of the pricing morbidity margins that would also increase premiums). I hope the NAIC and consumer groups realize the consequences of a noncancelable approach by considering these issues.

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For those of you who like graphs, here is an example of the effect of the tax and statutory reserve differentials for one policy at issue age 70 (Chart 10). The taxable income in dotted lines spikes up at the end of the second year because we're not getting to tax deduct that statutory reserve we had to set up in the second year (it could be 50-75% of premium depending on reserve basis). We only get a one-year preliminary term reserve deferral, not two years). So we get taxed on the dotted line income, resulting in the following after-tax income.

**CHART 10**  
**Long-Term-Care Income**  
**Pre-tax Statutory versus Taxable Income**



Shown in the dotted line in Chart 11, the effect is a significant tax hit in the early years, which is reduced later.

To see how these taxes add up, I prepared an example for one company's policy (Table 4). Note that it could vary significantly depending on all the factors mentioned earlier. You can see the additional impact of the active life reserve (ALR) tax discount rate differential on top of the 34% corporate rate (14% on ALR but only 1% on claim reserves below); the two-year versus one-year preliminary term method (10%) just graphed for you; and the real cost of the DAC tax (4%) – the ultimate example of IRS accountants not understanding actuarial present values. In fact, most of these additional tax costs are caused by timing and present values.

Table 5 shows statutory results only, but I listed a GAAP example in the handouts. The GAAP rates would be nearly cut in half for the AFIR interest components factors, so that the total tax rate on the GAAP example is about 55% versus 63% statutory here.

CHART 11  
 Long-Term-Care Income  
 Pre-tax Statutory versus After-Tax Statutory Income

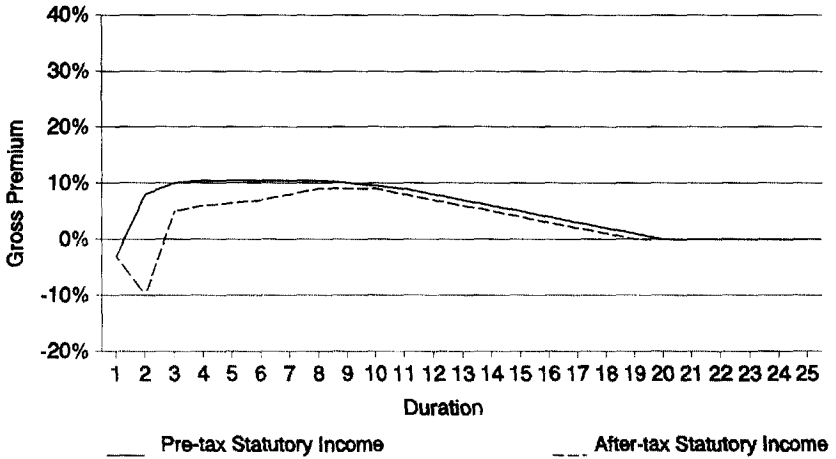


TABLE 4  
 Sample Tax Rates  
 PV Taxes ÷ PV Pre-tax Statutory Gain

	Statutory	GAAP
Corporate income	34%	34%
ALR – 8% AFR versus 5% statutory	14	7
ALR – 2-year versus 1-year FPT	10	10
Deferred acquisition Costs (DAC tax)	4	4
Claim reserves – 8% versus 5%	1	0
<b>Total</b>	<b>63%</b>	<b>55%</b>

TABLE 5  
 Sample Tax Rates  
 7% versus 12% Discount Rates

	7% Discount	12% Discount
Statutory	63%	79%
Target surplus	6	7
Mutual company	3	3
<b>Total</b>	<b>72%</b>	<b>89%</b>

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Those statutory tax rates were discounted at 7%; if we add the tax impact of target surplus and mutual company taxes (if required), we get a total of 72% at 7% discount, which could increase at higher discount rates, depending on the timing pattern of the profits (this one has an 89% total tax rate at a 12% discount rate).

I hope you can see why it is important to look at after-tax results, even if some of these costs may be removed or reduced in the future.

So as not to end on such a gloomy note, most companies I know of consider LTC products one of the most important investments for future viability and growth in the insurance industry, despite the possible high cost of taxes. Companies that are into LTC before the window of opportunity closes feel they are, or will be, positioned to meet the increasing future growth in demand for these products which has yet barely been tapped. This is an opportunity to obtain significant assets under management, to grow in an industry where many other insurance products as we know them may have their tax advantaged build-up removed, or may be taken over by the government. Meanwhile, LTC will likely grow as a private insurance industry product.

MR. CORLISS: Our objective throughout these presentations has been to move the discussion relative to LTC products to a greater level of understanding and to increase consideration of the various implications of this product development including extension of benefits into new areas. There are many forces at work that should cause the LTC insurance industry to move ahead, and move ahead very rapidly. We're serving the elderly public and their families in a very positive way – better than any other institution that we can think of. However, to continue to be a positive force, we have to keep a number of the financial, but nonpricing considerations in mind. If we as actuaries are not the ones determining the implications and the interrelationships among pricing, investments, surplus requirements, taxes and profitability, no one else will. That is our opportunity and our challenge. Now we look for more challenge from you in terms of either questions or comments relative to the presentation.

MR. EDWARD MAHORAK\*: I have a couple of questions and comments about taxes and tax rates. I agree that there is a problem now with regard to the one-year versus the two-year preliminary term reserve methodology. I seem to recall that some pieces of tax code can be changed (e.g., the mortality table) if adopted by 26 states.

Does the two-year preliminary term in the IRS code fall into the same category so that, if 26 states adopt the one-year preliminary term method, the IRS will move with it? Or is it hard coded as two years?

MS. BROWN: The portion of the tax code to which you are referring is Section 8073(D) under noncancelable A&H contracts. The tax definition of noncancelable does include guaranteed renewable contracts. It actually states in the code that the two-year preliminary term methodology is to be used.

MR. MAHORAK: So it's not as easy as having enough states adopt the one year?

\* Mr. Mahorak, not a member of the sponsoring organizations, is with Milliman & Robertson, Inc. in Radnor, Pennsylvania.

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MS. BROWN: State adoption will have no impact on this issue. A change will not arise unless we get a direct code change, which is a very difficult task.

MR. MAHORAK: I have a comment on your AFIR rates where you mentioned the difference between an 8% versus 5% rate. In the current interest-rate environment, I would anticipate that the AFIR will be dropping over the next few years. It could drop as low as 6% over the next five years, assuming interest rates stay the same. So while that is a problem now, it will be less of a problem over time.

MS. BROWN: That's true. However, the dynamic interest rates on the statutory reserve should be coming down as well. And the real impact depends on the differential and the ratio between those two rates. A 3% differential at a higher rate is going to have less of an impact at a lower rate. Currently, we're probably at the worse state we will be in for the foreseeable future.

MR. MAHORAK: Agreed. I've done some calculations on the statutory rate, and unless interest rates continue to drop, the 5% is unlikely to move for several years. The 3% should turn to 1.5% or even 1.25% over the next few years. One of the tax issues relates to the fact that there is no accepted morbidity table for LTC. When we create tax reserves for clients, we've been using the pricing assumptions, or the pricing assumptions plus a certain load. I have no awareness if the IRS has ever challenged any of the assumptions yet. Has anyone had any direct experience with the IRS on use of claim costs or any other morbidity source? Has the IRS officially bought off on any morbidity tables, or is it still a big question mark?

MR. CORLISS: I have not heard of any one being audited due to the newness of the product. I am not aware of any IRS comment relative to accepting or denying certain morbidity tables. Bart, has anything come up in the SOA LTC Valuation Committee?

MR. BARTLEY L. MUNSON: Nothing has come up in the valuation committee relative to this issue.

MR. MAHORAK: So no news is no news.

MR. BRUCE E. OLSON: It was mentioned there have been rate increases on certain LTC policies. What was the size of the increases? Were they on nursing home, home health care or combination products? How low a loss ratio have the companies been allowed to achieve?

MR. CORLISS: As a reinsurer, I've seen rate increases that range from 10-50% being implemented by certain organizations. The increases have been on all three forms you referenced. The analysis and filing requests were still to get them to an overall, lifetime consideration of a 60-65% loss ratio. I didn't see any insurance department willing to let them drop below the basic NAIC model level of 60%.