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REPRICING CONSIDERATIONS -- IN FORCE BLOCKS OF BUSINESS

Moderator: ROGER W. SMITH
Panelists: STEVEN BOGER
ALLAN L. CHAPMAN
EDWARD J. SLABY
Recorder: ROGER W. SMITH

- Indeterminate premium business
  - Differences in pricing assumptions from realized experience
  - Higher lapse than expected
  - Higher expenses than expected
  - Lower interest rates than expected
  - Lower mortality costs than expected
  - Is it appropriate to recover past net adverse deviations?
  - How are the new NAIC Statement Blank interrogatories being answered?
- Interest-sensitive business
  - Uses of asset/liability models in setting interest rate strategies
  - As changes occur for new business guarantees and illustrations, are similar changes being made to in force business?
  - Are in force but discontinued forms treated separately from in force on forms still being issued?
  - How are the new NAIC Statement Blank interrogatories being answered?
- Participating business
  - Uses of target surplus

MR. ROGER W. SMITH: We are privileged to have three fine panelists. Our first panelist will be Allan Chapman, a Senior Vice President with Executive Life Insurance Company in Los Angeles. Allan has been with Executive since 1980. During that time Executive Life has grown tremendously and definitely has a very large portfolio interest sensitive business. Allan is a Fellow of the Institute. Born in London, he has been in the Los Angeles area since 1963.

Our second panelist will be Ed Slaby. Ed is Senior Vice President with the Unity Mutual Life Insurance Company in Syracuse, New York. As well as being an actuary, Ed is the Senior Financial officer there. He has been with Unity since 1982. Ed will be presenting some of these issues from a par or mutual company perspective.

Our final panelist will be Steve Boger. Steve is an actuary in charge of Product Management at Allstate Life in Northbrook, Illinois. Steve has been there since 1985 and I think has been specializing in the annuity areas.

MR. ALLAN L. CHAPMAN: We have witnessed very dramatic changes in the life insurance industry during the course of the 1980s. No doubt, all of you could compile an extensive list of causative factors for these changes we have experienced. Personally, if I were to make up a list, volatility in interest rates would be at the top. I think this has created the need for the new wave of products that respond to changes in market interest rates and certainly the agent who is creating today's program.

We find ourselves in an environment that is certainly a lot more complex than yesterday's was. We as actuaries (at least most of us) have spent most of our careers concentrating primarily on the liability side of the balance sheet. We find ourselves now in a position that if we make any foolish judgements we need to look at both the assets and the liabilities. We can no longer consider them in isolation. I think that this increase in complexity will become more challenging. It certainly creates many more opportunities for each of us. Setting interest rates for interest-sensitive products certainly falls in that category.

The attention that you might give to this topic depends on how many interest-sensitive products you have on your books. Of our liabilities, 55% are interest sensitive, which includes about $1.5 billion of annual premium life insurance. Obviously, any interest rates we credit toward our interest-sensitive products are a really important aspect of our business.

Before interest rates can be established, it is necessary to fully analyze the fundamental nature of both the assets and the liabilities. As actuaries we probably have a penchant to look at the liability side of the balance sheet first. When looking at the liabilities I think you need to pay particular attention to the embedded options in the products. I believe that in general we haven't really adequately considered some of the options in pricing our products. No doubt the marketing pressures are the culprit. However, I don't think it is something we can avoid and we certainly need to look at it to be prudent. When we give the liabilities a quick checklist, I would recommend the following:

- First and foremost I think is the disintermediation risk. You need to look at the financial and psychological deterrents that contract holders have to surrender their contracts.
- Obviously a very important factor is the prevailing interest rates in the market for comparable products and for other financial instruments in general. Obviously we cannot operate in a vacuum.
- Historically credited interest rates to policyholders, particularly the existing level, is a substantial consideration.
- Any "expectations to policyholders that may have been created."
- The past experience for the product and how that relates to the original pricing assumptions is also needed.
- Product specific characteristics including embedded policyholder options in the program.

I think this review will give you a good fix on where you would like to set interest rates. We now need to address the more difficult question of what we can afford to credit. To answer this you need an identifiable investment portfolio to support the liabilities. Now this is an area where I think each can develop his own individual approach and it is not easy to generalize.

So maybe I can give you the view that we have taken in terms of portfolio segmentation. For internal measurement purposes we have hypothecated an approach that really reflects our view of the varying degree of precision that one can match with the various products you have on your books.

REPRICING CONSIDERATIONS -- IN FORCE BLOCKS OF BUSINESS

1. GIC -- Guaranteed Investment Contracts represent intermediate-term cash flows which are predictable with some precision. This is the only portfolio that we find that we can cash flow match on a fairly precise basis.

2. SPIA -- Our second portfolio covers Single Premium Immediate Annuities and similar products. These represent long term cash flows which are determinable with fairly high degree of confidence and this portfolio contains all of our investments of the longest durations.

3. Interest-Sensitive Contracts -- The third is the remainder of our portfolio which supports the interest-sensitive contracts, both life insurance and annuities. It includes fixed income securities, primarily bonds of relatively short duration and short-term investments.

When you have identified the investment portfolio that is backing up your specific products, the next step is really to capture the salient feature of each of those securities. You will need to make decisions on how to handle the core feature of the bonds. Credit quality is another consideration. Prepayments on collateralized mortgage obligations are very interest sensitive and need to be determined. I believe you are going to have a particular difficulty with securities such as real estate and equities which do not move in conjunction with interest rates with any degree of precision and I am personally not sure how this can be resolved adequately. A lot of companies of course ascribe that to the capital and surplus but if it is a larger segment of your total assets that is something you need to consider.

You also need to formulate an investment strategy to handle future cash flows. This gets us into one of the more subjective areas when you are doing projections since any viable investment strategy, in my opinion, has to be flexible enough to adapt itself to changing conditions and you have a situation that is emerging to meet the changes that are going to occur in the future. That is not an easy thing to anticipate. Probably the most objective approach would be to assume that the current composition of the assets will remain pretty much the same in the future so any positive cash flow would presume to be invested to maintain those same general characteristics. Of course your investment department input may suggest that another course is more reflecting of potential reality.

The other issue is what happens with negative cash flow. And there you really have the choice of borrowing money from other lines of business or selling some securities. In practice if the deficits are relatively minor and the positive cash flow follows shortly thereafter, then probably the borrowing approach makes more sense. If you have substantial negatives, then that is obviously something you are going to need to accommodate.

In setting interest rates we can consider all like contracts written in the past or we can aggregate them depending upon the generation in which they were produced. A lot of times I think we will find that companies had a relatively small volume of business written during the higher interest rates of the early 1980s and maybe would decide that they don't need to, at this stage at least, differentiate by generation. Looking at other companies, my impression is that for recurring premium products most companies have used the portfolio approach in terms of crediting interest rates. I think this is partly a function of the relative newness of the business. No doubt practical considerations and the general decline in interest rates have contributed to this.

Before any asset/liability model can be built we still need to determine some algorithms to account for the various options available to both policyholders and to the options available to the issuers of the securities. The algorithms obviously need to incorporate, as one of their variables, the current level of interest rates. In this exercise I think it is essential that you critically review the assumptions made to make sure they are mutually consistent. This is easier said than done in some cases but you need some consistency if the results are going to be valid.

This enables us to run simulation where we can use various interest rate paths that are credited stochastically; then, of course, you need to build in some relationships to determine what your credited interest rate strategy will be given that interest rate environment. Simulations typically will start with the book value of the assets being said equal to that of the reserves and I think most companies are doing these on a statutory basis. Typically the interest-sensitive type of business would have been written in the relatively recent past. The assets that are supporting that line of business would have been less than that group of business would have generated. The portfolio contains capital contributions that have been allocated, so consequently the surplus that is generated from the simulations doesn't represent the gain on that line of business. And one has to be very careful that one is receiving an adequate return on the capital contribution. I think most of us in our companies would have great difficulties in actually determining with any precision how much capital has been contributed to the line of business. But having established that or estimating that initially, I think tracking on an ongoing basis shouldn't prove to be too difficult.

You might find when you run your simulations that the swings are too wide for your particular comfort level and this raises the issue of your asset/liability management -- something that you will need to address. That topic is way beyond the scope of this presentation, but the one comment that I would make is that because the assets and liabilities have a similar duration, I wouldn't feel any degree of comfort level because when the liability cash flow itself is interest sensitive, the duration can change dramatically with interest rate movements, which is known as convexity.

The complications involved in this determination are very significant. Since interest rates for most of these products can be set annually it seems to be tempting to say that we'll just look at the current interest rate environment and project on that basis. Next year we would have another look at it based on then prevailing interest rates. The danger with that approach is the potential problems won't be encountered until it may be too late to adequately address them. So as tempting as this approach may be, I would suggest that a more sophisticated system be adopted.

In the whole system we are really trying to minimize the exposure we have to interest rate volatility and many of us would feel that we don't have as much influence on the assets as we do on the liabilities. But I think we can look just at the liability side of the business and sometimes we can substantially reduce our exposure to interest rate movements and I think a good example of this would be products which are complementary -- those products which move in opposite directions should interest rates move up or down. Good examples of these would be the single premium immediate annuities and single premium deferred annuities. A number of years ago at Executive Life we had a preponderance of interest-sensitive annuities and I personally was very concerned about liabilities. So we bound upon a program of writing a much larger volume of single premium annuities. You can determine the cash flows generated from single premium annuities within fairly narrow ranges. The typical investment portfolio which backs up those contracts will have a strong positive cash flow over and above the payments of benefits and expenses for some appreciable period of time and negative cash flow thereafter. This structure is created because it is difficult to find many attractive investments beyond like a 20-year time frame and additionally the margins between your pricing basis and your investment return will include additional investment income year after year. You have a structure that has significant positive cash flow for some extended period followed by a negative and with such a nature it is obviously with higher interest rates that your reinvestment rates will be improved and the profitability will be significantly improved. Conversely, in a declining interest rate environment, you would not do as well.

If you flip over to the other side and look at single premium deferred annuities when interest rates rise, you really are faced with a choice of either keeping your interest rates about the same and suffer disintermediation or you can raise the credited interest rates and you will find in that case that you will not be able to redeploy the assets for some period or there will be pressure on earnings during that period. I think in practice most companies have used an intermediate approach between those two. Whichever one is used or whichever strategy is adopted, high-interest rate environment at least on a short-term basis is negative for these products. In a declining interest rate environment, however, one is able to bring down the credited rate much closer to the current interest rate environment and the assets you will find will diminish in their return at a slower rate, thus improving the profitability.

So you have an issue here of two products which would make good companions and reduce the interest rate volatility. Obviously, there are other products and strategies for which this could be done but I think that we need to give more attention to what we can do to structure the liabilities.

Now thus far in setting interest rates I really have been looking at the internal risk management and the profit objectives. The final decision is going to be influenced by many other factors.

- One obvious and significant one is the level of interest rates that have been credited by other companies to similar products which we have been selling to the same general segment of the population.

- It is essential to maintain product integrity. Included in this are the interest rates now being used to produce illustrations and those which were originally used for the contracts in force. Although policyholders generally realize that interest rates actually received would depend upon market rate the relationship between historical rates should be considered. Creditability is essential if you are going to build successful long-term relationships with both your clients and your agents.

- At the present time the marketing of interest-sensitive products is very competitive. Maintenance of original pricing objectives may be difficult. You are going to perhaps face a strategic challenge as to which path to follow, whether to remain close to your original projections or be more competitive. It is going to be a tough call.

Interest rates credited on the annual premium interest-sensitive life insurance products take on far greater financial significance as business matures and the account values within those contracts grow. This will compel companies to give greater attention to some of these issues that we are discussing with the passage of time. It is going to force greater discipline on the industry in general which I think long term will have to be very healthy.

I have been asked to make some comments on the interrogatory that's been added to Exhibit A that appeared for the first time in last year's convention statement. These new interrogatories are designed to provide some insight into techniques used to credit interest rates and other nonguaranteed elements of contracts, to both new and existing contracts.

Particular emphasis is given to changes that we made that occurred in the declaration since the last filing. The actuary is required to opine as to whether the current levels are supportable.

Personally I have somewhat of a problem with these types of interrogatories which by their nature require some very subjective opinions. These opinions will only be questioned in the future if they prove to be adverse, at which time it will be far more obvious that the actual event could have occurred. This puts the valuation actuary in somewhat of a difficult position to have to consider the consequences of being second guessed without being overly pessimistic. The end result is that the jury ends up in a rather noninformative response.

To use a similar analogy the New York Insurance Department, as I am sure you are aware, promulgated Regulation 126 a number of years ago; I think most companies struggled in the early years inadequately addressing that. Now there are a couple of topics on the program in this meeting. I think we as actuaries are getting a much better handle on this and doing a much more adequate job.

So maybe a similar experience that will occur with these interrogatories. I certainly hope so.

MR. EDWARD J. SLABY: Recently I was asked by one of our young actuaries, "What's the most important single thing for a young actuary to know?" I thought for a moment and considered the various items on the syllabus but chose not to give any of them undue prominence and I gave her the answer that I think we all know is right. What a young actuary needs to know is how to become an old actuary and I would like to share with you some of my experiences in trying to become an old actuary in a small mutual company in New York State.

The Company I work for, Unity Mutual, had nothing but par business on its books until six or so years ago. It started to write a few annuities. Since then it has shifted and we have the preponderance of our assets in things like Universal Life Insurance and deferred annuities. We still have about $2 billion of life insurance on a participating basis and of course this needs to be repriced.

This is an important issue to me. When I came to the Company we were facing old three-factor dividend scales. Nobody was quite sure what those factors were or where they came from but they seemed to fit some asset shares back in the drawer.

The Company was looking at a burden of lacking capital. It had gone through a great growth spurt recently and it was time to get a handle on our dividend scales in a way that we could understand and manage. We saw that we were going to have to make our par products more competitive with these new interest-sensitive products. We were under the impression, which was reinforced by the Insurance Department to an extent, that we might have lost some equity between different generations of policyholders.

It was tough to get useful management information out of our dividend systems. I started to approach the job as one of surplus management and I started to pay attention to C-1, C-2, C-3 type consideration because one of the things we were going to need was risk capital and we needed a plan to build that. We certainly didn't have that in place to start.

Finally, we knew we would eventually become a stock company. We haven't done that. In fact we are lobbying this week in the New York legislature to try to get a law that would permit that. We have to plan ahead to manage our par business for that eventuality. As the laws have been proposed in New York there would be some very strict guidelines for the actuary who has to manage that conversion.

My technical response was to adopt the ideas from a seminar paper written by Don Cody, published in the 1980 *Transactions* on an expanded financial structure for ordinary dividends. This proposed a dividend procedure, which instead of three factors or something that really didn't fit with modern computer systems, allowed you to treat your dividend calculation as a microcosm of page 5 of the annual statement.

Instead of solving for a gain or loss you solve for the dividend and place an explicit surplus charge in as an expense. Now it's not all that simple because there are certain peggings, rounding and smoothing adjustments, but you try to keep those to a minimum. The great advantage of this was that you could see your dividend elements in detail. You build a model by line of business and dividend class; you use that model to aggregate those dividend elements. Your investment income was the rate that you put in as your dividend rate against a dividend fund which you defined in a way appropriate to match the amount of assets that you perceived. This model gave you a nice way of analyzing your actual versus expected performance or source of earnings to be derived from that.

When I worked with the SOA committee on demutualization, we discussed two theories about participating surplus. One is known as the revolving door theory which says simply that each policyholder or each class of policyholders can contribute capital to the entity while they are there but capital is returned to them as a class before the last policyholder leaves. The other theory which we examined was what I call the entity surplus idea. Each policyholder makes a small permanent contribution to the ongoing entity as a reasonable and necessary charge in return for his membership as a participating policyholder.

The SOA committee based these findings on a complicated model which ran 100 simulated years.

- o It was possible to run a company as a revolving door, but in fact most companies were not.
- o Most companies made small surplus charges, implicit or explicit which were left behind when that class of policies left the Company.

The surplus charge that we were starting to use in our dividend scales then became a way of expressing that small permanent charge. It also had other features. We could use it to directly assess how much equity was in the various dividend classes that we had. This became an issue. Our company has merged with three other companies in the course of getting approvals from different Insurance Departments. Some of these mergers were across state lines. In each case it fell to me to bring these par blocks of business into our books and treat them consistency with our block.

So I found that the best way of expressing this to the Insurance Departments was to show them the imputed surplus charges in the scales of the companies that were joining Unity, and our surplus charges, and a plan for bringing those into some consistency over a reasonable period of time.

As you can imagine companies were all over the lot. We have also found that the surplus charge is the mechanism that we can use for making an explicit charge for funding our risk capital for C-2 and C-3 risks. We don't have a lot of refinement at this point in setting C-1, C-2 and C-3 target surplus levels and we tend to borrow a lot from industry usages and literature; you will find that our formula looks a lot like Lincoln National's at this point. But it has the merit of also pointing us at one of our other goals which is to maintain an A rating with the A M Best Company, so this explicit surplus charge was the key feature of Don Cody's article on dividends.

Another feature was the calculation of the dividend fund representing the assets that were considered to be invested for these par lines of business. This can be used in two ways. Right now it simply is the way that we express our interest earnings and we do use the investment year method for allocating investment income to classes. We are starting now to look at this whole par block as an interest-sensitive line of business. We are in fact hoping to forestall it becoming a defector closed block, making it more competitive. We had that as an original goal but were not able to do that and had to go to the Universal Life to keep up with product lines. However, we feel we can get back to competitive par products at least in certain of our markets. We are going to include those lines in setting our investment policy, using asset/liability matching techniques.

The other thing that we need is a pretty good handle on which assets are in these par lines. We do have a sort of a rough and ready segmentation that we use. Of course, the investment year method gives us information as well. We are already refining that segmentation, but anticipating demutualization and conversion of the company. We know that we will have to wall off assets for these par lines such that there is every reasonable expectation that if current experience continues we will be able to continue with the current dividend scale. That has some implications as to the security of those assets. We will not be able to put a lot of risk into those assets and will have to position the assets in a way that will give every reasonable expectation that the dividend scales can be continued. This is an interesting type of exercise.

In addition to these technical responses with our dividend procedures, I have also started to put into place an accounting response, specifically a return on equity type of management reporting for internal purposes. It has the merit of being a sort of GAAP for mutuals and for our par business. Since there is no GAAP for mutuals we decided this was a very good way to go. This was, as many of you know, another outcome of the subcommittees that worked on the demutualization issues. We are using this kind of GAAP for our participating business in order to prepare analyses for investment bankers as well as for our own purposes in planning. Also, the other objective that we have is that we want to bring target surplus into financial planning in a formal way.

Let me run through the return on equity concepts very quickly. It's generally statutory accounting with a few adjustments. Establish an asset equal to the present value of your future book profits. The change in that asset runs through your income statement each year and essentially shows you the value added by your operations that year. We are also establishing a liability for our target surplus. The change in our target surplus serves as a release from risk type of mechanism and we can consider that a pretty good approximation to GAAP. That's another point of contact where the dividend scales will be tied into our target surplus considerations.

All of these new systems and procedures have taken us a little while to put into place and with a small company our resources are stretched thin but we have been able now to get our financial systems where we are focused on surplus management, specifically the growth rate of the company. We find in a small company that you can't put a growth line on a chart and very confidently say that this is what you are going to do. There tend to be spurts and fits and starts and you grow when you can.

We have an understanding of our target surplus level and we are hoping to get to the fully funded status one of these days and the button that management has to push is the level of the surplus charges in the dividend scale. It is a very useful mechanism. It also gives us a place where policyholder equity and corporate governments intersect in our deliberations.

I think we have come to the conclusion that our dividend scales aren't as static as they used to be. We are gearing up to move much more quickly in changing dividend scales. As I said, we are going to try to look at our dividend fund as an interest-sensitive type of entity and we would like to keep this line alive and well.

It serves as a prop right now for our company, it allows us to expand into new ventures. It is the stable portion of our business and we don't want it to become an ad hoc closed line. So, looking back on where we were a few years ago, with three-factor formulas, sort of a routinization had come into our dividend handling. Things were relatively static and we hardly ever looked at dividends except where we were newly illustrating. We have now come around to a pretty active product management of par business and it has had the salutatory effect of changing our management systems.

I would like to just close with a quote that I found: 100 years ago Elizur Wright, who really founded this business, I guess, or who made it possible with his invention of net level premium reserves said "Life insurance unites the past, present and future in one partnership. It strives to shape itself to rates of mortality and interest that will be the average for all ages." Well I would think these days we would say that is a dream that has come and gone. I think that product management now is the place where we try to shape the past, present and future of our product line. He continues, "It is not how much of the past and present burden can be thrown on the future, but what will be as fair for one as for the other." I think we can agree with that.

MR. STEVEN BOGER: I am going to discuss some of the concepts that I go through in reviewing our interest sensitive products at Allstate. In this particular case I am going to be looking at a flexible premium retirement annuity and take you through changes in experience. You will see three things unfolding as we go through both the original and then our repricing assumptions.

As I said this is a flexible premium retirement annuity. We sold it for this simulation; I should point out that this isn't an actual product of ours although it has similarities, otherwise I'd probably put my foot in a bucket. It was sold in a tax qualified market. We are going to presume it was sold in the early 1980s so we went through a period of Individual Retirement Account (IRA) eligibility where everyone in the country was eligible to contribute to an IRA; furthermore everyone knew he was eligible to contribute to an IRA. It was a very active and closely followed market.

The corporation has decided to measure the equity of the line as the excess statutory reserves that they need to hold to continue to be a licensed life company over what they consider to be their GAAP equity. I appreciate Ed going through Return on Equity (ROE) a little bit. Finally, this was a deterministic pricing, meaning that it was the way we all did things 5 or 10 years ago before wide acceptance of C-3 risk and volatility and the fact that there was more than one answer.

For repricing purposes we are going to look now at the 1986 tax reform which had a pretty substantial impact on an IRA product. A lot of our policyholders out there are no longer eligible to make a tax deductible contribution. That cut into our market. Also, we have a lot of agents and policyholders who are eligible to make a contribution but don't know it. That's cut into our market some more. We can expect future contributions to this product line to be down substantially.

The corporation has decided secondly to shoot for a stronger balance sheet position and they are now demanding a return on equity not just based on that strain that I spoke of before, but they are adding 4% of the statutory reserves to the measure of equity requirement. That should leave them in a stronger position at the end of the product lifetime. Finally, we can either purchase or develop on our own a dynamic pricing capability and we will be looking at the variance of the answers as well as the mean.

We are going to try to keep the product real simple so that we can move on to the results. There are no loads assessed in this contract except for the event of what I call premature surrender. We follow a declining schedule for seven policy years, decreasing by 1% per year.

We are going to assume that originally people put $2,000 a year into the contract and that two-thirds of them roughly would have made additional contributions in renewal years under the old tax rules but that is now going to drop off to only about 30% due to the confusion and reduced eligibility. We should see future revenues drop substantially, use a simple 10% contract lapse, use commissions at 10% at point of sale, 2% for renewal, to try to keep the agents interested in those renewals even though they are a little confused perhaps about the tax law.

Finally there are some expenses for issuing and maintaining the contract, some level and some a percent of the premium.

Flexible Premium Retirement Annuity
Pricing Assumptions

- $2,000 Premium at Sale
- Renewal Premiums Per Contract In Force
  65% -- Original Pricing
  30% -- Repricing
- 10% Contract Lapses Per Year
- Commissions
  10% -- First Year
  2% -- Renewal Years
- Expenses
  $100 at Issue
  $ 20 Per Year
  1% of Premium

With that little lead-in as to the product and what's changed in the product, I am going to first show you what management originally expected. We were expecting to pick up $7,463 in revenue per contract. That's a present value number. The present value of those profits was $234 per sale and the return on equity was a very attractive 30%.

Repricing Results

	Present Value of Premium $	Present Value of Profit $	Return on Equity %
Original	7,463	234	30
Revised Equity	7,463	234	14
Change in Tax Law	4,434	95	13

Now when I finished with this exercise I looked at that and I said something's wrong here. Either we have an outstanding marketing opportunity or these assumptions are too aggressive. I don't think large businesses available to the entire country enjoy 30% return on equity on an ongoing basis.

I think we will see some of that falling through. This gets into what happens when we repriced for all of those changes.

When we revised the equity from the additional statutory reserves to those plus 4% of themselves, return on equity fell from 30% to 14%. If we then take into account the change in tax law you can see that revenues dropped. The return on equity is not substantially impacted. We are expecting a rather proportionate change in revenues and return, a substantial decrease. What can we do about that? I think that would be your question as the product management actuary. What I looked at was the corporation changing its crediting rating by an additional 50 or 100 basis points. In other words we will increase our spread, we will decrease our crediting rate, and we will see how much we can put the business back on the pace we were expecting. Looking at the last two lines you see a modest decrease in revenues; we are assuming that some of this reduction in crediting rates is going to drive a few additional policyholders to lapse. I would have assumed a more substantial effect except that I think that the contract holder's awareness of this product is down a little bit from what it would have been a few years ago. Profit is up from $95 to $114 or to $138. Return on equity improves a little bit but it wasn't very gratifying.

Repricing Results

	Present Value of		Return
	Premium	Profit	on Equity
	$	$	%
Original	7,463	234	30
Revised Equity	7,463	234	14
Change in Tax Law	4,434	95	13
Spread + 50 basis points	4,392	114	14
Spread + 100 basis points	4,360	138	15

If your management is return on equity driven as ours is, I think you will find this a rather frustrating conclusion. It is going to be very, very difficult to enhance that return on equity.

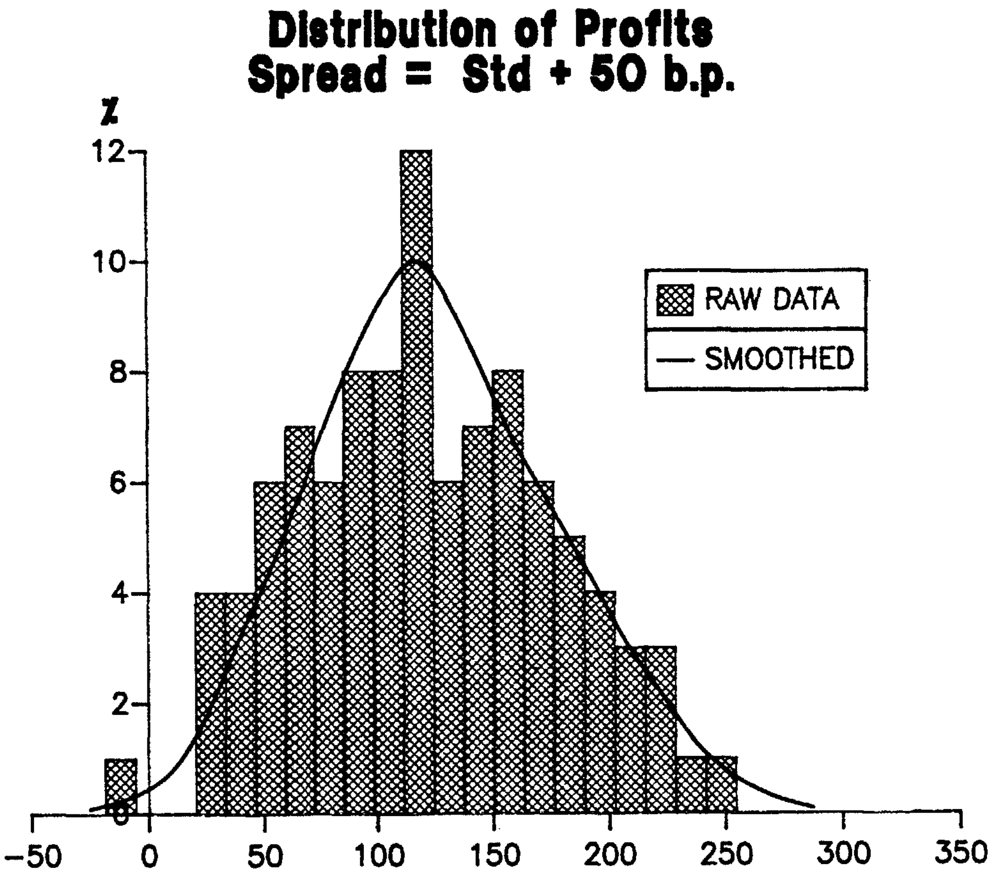
What we have looked at right now is some dynamic pricing although it doesn't look very dynamic; this is the average of 100 Monte Carlo trails and this would be similar in form to the deterministic pricing we looked at before.

Now I want to get into some of the individual economic trails that went into that because at Allstate we are starting to think that variance in results is at least as important as the level of the result.

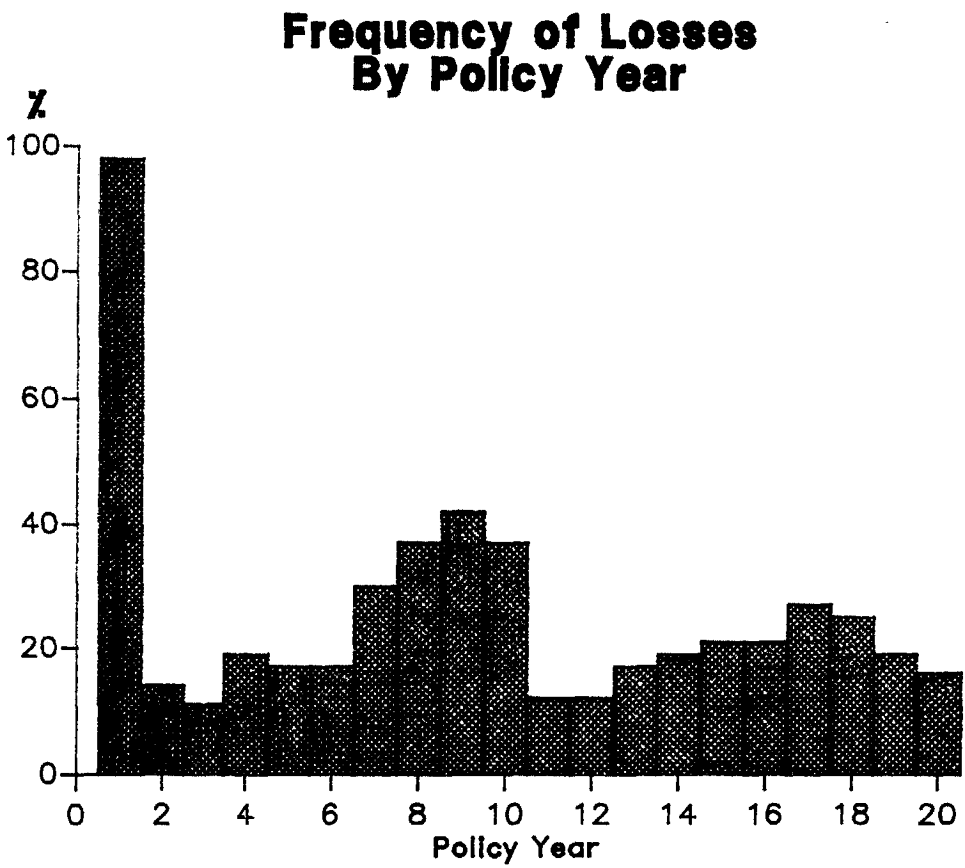
I like Graph 1 a lot because I feel like I am moving from Kansas to Oz. You see that the mean of this distribution is still around that $114 level. We have quite a variance in results; in fact, a few of the trails a risk of loss as shown by the left-most bar which is in the negative range. This comes as something of a surprise if you have a management that is not actuarially inclined because that is sort of expecting a return on equity at 13, 14, or 15% year after year and in fact they are saying that about half the time it is better and about half the time it is worse.

Another factor that people are concerned about is if we have a lifetime probability of loss, we must have some probability of loss in an individual year. We look at that pretty closely. Graph 2 shows that in those 100 tries we have had some pretty substantial probabilities of loss. When you blend the business you would diminish this probability quite a bit. Management tends to be pretty concerned about something like this because they have been expecting losses in the first year and then steady profits thereafter with a nice predictable return of equity. Suddenly, you say, "No, there is volatility. We have about a 20% probability of loss in any one particular year."

GRAPH 1


Distribution of Profits
Spread = Std + 50 b.p.
%
12
10
8
6
4
2
0
-50
0
50
100
150
200
250
300
350
RAW DATA
SMOOTHED

GRAPH 2


Frequency of Losses
By Policy Year
%
100
80
60
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Policy Year

Just a week or two ago some of you may have read in a local newspaper that one of our actuaries was quoted as saying that once you have completed the exams this is a pretty stress-free career. I can assure you if you are taking this graph to management it is not stress-free. I assure you some of the things we go though in making an interest crediting decision and reviewing a product include whether or not we should be changing our spreads. If so by how much, and what will we get for it.

MR. SMITH: Hearing the comments brought to mind something that I wanted to do a couple of years ago when I was on an exam committee writing exam questions. I have seen many exam questions that state, "You are the actuary of a small company." The one that I always wanted to write was, "You are the actuary of a small company. What can you do to make it smaller?" From what I have heard it seems like you have to work pretty hard to avoid that situation.

We have heard an awful lot about interest rates from the two stock company people, but what effect do expenses and mortality have? I mean are interest rates the critical driving force?

MR. CHAPMAN: For our own part the products that we sell have very significant expenses at the point of issuance in terms or our internal expenses and the commissions. From that point forward, however, most of the expenses are relatively predictable or are percentage expenses for commissions and premiums taxes. We sell a very high average size policy so internal processing expenses are not a significant element. For ourselves the real expenses have already been incurred and the ones to be incurred are pretty predictable. That is not a particular difficulty that we have found in doing any of our studies.

Our mortality experience has been overall slightly better than the original pricing assumptions. We have maintained that in terms of projecting for the future. Hopefully that will give us some degree of conservatism as on presuming you can assume that mortality, putting AIDS to to one side at least for the moment, would improve. However, most of the product that we have written is not only interest sensitive but is mortality sensitive also. Should we see a deterioration in mortality experience we can pass it on to the policyholders at least to the extent of the maximum risk rates we have in our products. That is not a particular concern to me. Hopefully mortality will come down and we can reduce the charges. We have reduced the mortality charges to existing policyholders since we introduced an Irreplaceable product line back in 1979 .

MR. SLABY: I guess I will just echo Allan's comments which are that our mortality to date, while we are well aware of it, has been just slightly better than pricing which we're certainly pleased by and we keep monitoring it on an annual basis given that it is an important part of profitability. I think we consider our expenses to be primarily our own management issue and we try as hard as we can to avoid making that a part of our interest rate meeting. To date, by staying on top of the expenses and the source of those we have been able to keep that out of our monthly interest rate meeting. We have been able to focus primarily on the other aspects of the repricing, namely the interest rate.

MR. LOUIS DOIRON: I thought we would hear more about the expectation of increasing mortality due to AIDS and what considerations would be involved in repricing in force products in the future. So could we have any comments on that?

MR. BOGER: Well we have looked at The Society's paper on AIDS and at our own margins for mortality on Universal Life. In our particular case we can, although we would prefer not to, cover the risk of AIDS by increasing our mortality charges to their maximum. In fact we think that they would be more than adequate. What we are doing is attempting to control that risk for new business with blood testing and substantially tighter underwriting at the point of issue. We have reviewed that situation and we feel that our exposure to AIDS is no worse and is perhaps slightly better, although I would say very slightly, than the norm.

MR. DOIRON: However, controlling AIDS through testing is just one facet of it because you know that in your portfolio you have people who are high-risk people who will eventually get AIDS and you will be hit even if you test at a very low level.

MR. BOGER: Well that is absolutely true and the bulk of our Universal life business is early duration business and therefore it is mortality sensitive, but at this point in total, our mortality is a little better than what it was priced for and it appears to continue to be roughly as priced for or only slightly worse with typical AIDS modeling. So we have looked at it, but it's not a part of our monthly decision.

MR. CHAPMAN: Our experience has been very similar. To some extent I think that perhaps we have less exposure than some because we write a very large average size policy so we typically have an older clientele. To that extent maybe we don't have as much exposure to AIDS. The thing that I think you are saying when you look at pricing products is the interest rate has substantially greater impact upon the financial results than the mortality has. You can handle a fairly substantial variation in your mortality charges and still produce better values to your clients should you earn an extra 50 to 75 basis points. If you put it into context it depends on the sort of product you are writing. If it has a large equity content you find that the interest considerations tend to substantially outweigh the mortality ones at least in the realms that we have developed. I say we haven't really noticed any aberration in the mortality. In fact it's been slightly better than we had originally assumed.

MR. LARRY WAYNE GULLEEN: There is a tendency in some of the sessions I have been at for the last couple of years to hear people say that they may be setting one interest rate for new business, whatever it takes to get the new business, and another one for in force business. I would like to have some comments on that. What effect does that have on interrogatories in the annual statement blank? What will that eventually do to our credibility? For example, our illustrations would say that we would credit 10% forever and yet the intention of the company might be to credit 10% for a few years and then drop it back to a portfolio rate.

MR. CHAPMAN: That was on the program and I deliberately sidestepped it because in our particular case we've always credited the same interest rate to the existing contract holders that we have for our new ones. We have never differentiated in our annual premium life insurance products. This is not the case for all companies, so I decided very diplomatically not to raise that issue.

I think that product integrity is very important and when one is running an illustration one should have a fairly high degree of comfort level that those illustrations are sustainable given the current economic environment. To sell products off of illustrations that you are somewhat doubtful of meeting is a somewhat questionable procedure and if you want to build the business long term, I don't think that is a very wise course to adopt.

In our own case we have always run projections at a lower interest rate than those we are currently crediting to contract holders. Some years ago it was 200 basis points less because interest rates have come down. I think that also gave us an edge in the terms that at least historically we always credited higher rates than those that are shown on the original illustration. That has had, I think, a significant impact upon our persistence. As all of you know that is the one question that wasn't raised, but persistence is as important as all the other topics we have been discussing. Especially with the products that we are selling which are so heavily loaded up front.

MR. EDWARD L. ASTRACHAN: I would like to follow up on the previous question. You can make the assertion that your product integrity is such that it is in your self-interest to avoid bait and switch. In the real world it is never really entirely clear where the line between bait and switch and prudent financial management ends.

Nevertheless, a lot of what I have seen in the literature indicates that bait and switch could very will be the profitable alternative. Companies are going to be tempted. Maybe your company won't be tempted, but I am sure that there are a lot of companies who will be tempted to use bait and switch and wonder whether the present regulatory environment or actuarial guidelines are really adequate to prevent an environment where the companies which want to be legitimate in meeting reasonable expectations of their policyholders feel that they can't do it in order to be competitive. Then you have a situation where actuaries doing repricing are constantly caught in an ethical dilemma.

MR. CHAPMAN: My one observation on that would be that despite competitive pressures, I don't think companies are deliberately using bait and switch tactics. I think it is questionable whether some of the projections currently being made are attainable. Now that is a question of judgement and only time will tell, but I think at the moment we are seeing an environment in which interest rates have been substantially higher. Interest rates have been brought down but perhaps slower than the economic conditions would dictate. And I think as I mentioned in my presentation, as time goes on the financial impact of interest-sensitive products is to become substantial. Reality will have to prevail in any particular company that has a meaningful body of business. I don't believe that bait and switch tactics are being employed but I think that some clients, in the long term may feel that the delivery of value may not have been what was originally presented to them.

MR. LEONARD K. HELFGOTT: First I would like to comment that, to my knowledge, New York State does not allow one to change the margins at issuance at future points in time. Although we probably all do bend the numbers a bit by under .25% in one situation or another, I question the whole concept of issuing at a higher rate and then deliberately changing your profit margin at a later point. I believe it is in violation of the New York State Laws.

The other point that I wanted to bring up is given that factor, you still have certain problems in the investment cycle on the extremely interest-sensitive products like a flexible annuity or a single premium deferred annuity and you run into a different type of dilemma which was just touched on by the prior question. Let's say you issued an annuity contract and you have a targeted margin of 2%. You intend to keep that 2% margin forever. You prognosticated your investment that you are going to make for this particular liability and you guess you are going to earn 10% and that includes a mixture of all sorts of investments, possibly some enhanced return, possibly some real estate, and you also assume that you are going to invest them in a timely fashion rather than sit on them for two or three months. You have priced the contract at an 8% credited rate. Now you come down the road a couple of years later and you find out all of those investment assumptions you made for one reason or another did not fully materialize and that you are left with an investment class that is earning 9% and according to your margins you're supposed to be crediting them 7%. The problem that occurs is that your market rates may even have gone up a bit and even though you are more conservative in your investment assumptions, you now find that with the current market rate you can earn 10% and credit 8%. Well if you can do that today, and you go out and sell new contracts at 8% today, and you have a block of old contracts, are you supposed to lower them down to 7%? If you commit that action then you are going to get a waive of protest from your agency force or from your brokers or from contract holders themselves that you've preformed this bait and switch technique and then why should you lower a class that was issued at 8% if you are now issuing new issues at 8%? To get around that problem you are going to have to subsidize the older block to some extent or use some type of blending technique of one form or another. I wonder if any of you, particularly Mr. Boger, could comment on that particular characteristic or phenomenon, and how you have a solved it or how you might solve it in the future.

MR. BOGER: Well practically speaking in the period in which we have sold products like that interest rates have gone down and so the dilemma hasn't raised its head. In that same period, we've switched extensively to dynamic modeling and we attempt to build into our model an interest crediting strategy which will react to that marketplace somewhat independently of our own assets so that we are not exclusively portfolio driven. We look to the likely cost of crediting a rate that doesn't match our portfolio. We specifically include in our pricing and our crediting strategy the risk of having to follow an ethical decision in spite of the fact that they might not be exactly what our fixed 200 basis point spread would desire, and what we have found is that continued sales and continued market presence can alleviate some of that pressure but it is inevitably there and you have to keep your attention to one of the things you referred to -- getting your money invested in a timely fashion. But as I say, so far this is all electronic simulation; we haven't been through that in the real world.

MR. WILLIAM T. TOZER: I am the past chairman of the Academy Task Force on Non-Guaranteed Elements and I would like to clarify one statement I think that Allan made earlier on Interrogatory 7. Interrogatory 7 states that there is a substantial probability that the illustrations that are currently being made cannot be supported by currently anticipated experience. On the Task Force when we worked on that interrogatory we felt that that was a considerably different question than the question, "Does current anticipated experience support current illustrations?" We feel that we need to make a statement that if current illustrations are not representative. That is the question not the reverse. In reference to whether the interrogatories stop bait and switch, the Task Force really felt that bait and switch probably can't be stopped completely. However, it was hopeful that the interrogatories and things like that would discourage bait and switch. Only time will tell whether the interrogatories can accomplish that task or whether the need to be expanded or revised to better accomplish that task in the future. The Task Force thought that at least this was a step in that direction and hopefully each step will improve the situation.

MR. CHAPMAN: I appreciate your comments. I think all of us intellectually support the interrogatories. I just had a problem that by itself it was putting a lot of pressure on your typical valuation actuary.

MR. ROBERT OZENBAUGH: I think I am just as much concerned about the measure of the equity in the contract as I am in the return and I think in our company, and I see this often, that a lot of us are driven by some things that don't necessarily represent that equity. I am a believer in risk and return and efficient markets and if you take a certain level of risks you accept a certain level of return. I am not convinced that Best's formula for surplus is the measure of the risk that I have accepted in a contract. I am convinced that maintaining an A+ rating is very important. So my question is, "How do you manage that phenomenon?" If you have a product that you feel doesn't warrant that level of surplus but that becomes part of your equity, and I think in Mr. Boger's formula that would become a part of his equity, 104% represent's Best's formula, and now you can't get the return the management wants on its investments then what happens?

MR. BOGER: That's the difficult real world situation. We look, as I suspect many do, closely at what Best's expectations are, and we are conscious of them but we also spend time talking with Best's as to what our products are, our characteristics and just keeping them informed as to our businesses. I don't know that that's actually led to any specific changes in their analysis of us but we feel a little bit more comfortable that they know what they are looking at when they speak to us. We consider their factors carefully and we try to educate them as to what we feel those should be as well.

MR. OZENBAUGH: My concern is if you are managing a line you want to grow and you want to know where to put your surplus, the rate that you can grow is very much dependent on Best's and not necessarily on the type of risk you think you are taking.

MR. BOGER: That is true although I certainly don't think Best is anywhere near blind of the realities of the contract.

MR. SMITH: I have one more question for Allan. You mentioned the policyholder expectations and so forth as being an ingredient in overall determination. I was wondering, "Is there anything special in terms of modelling that?" Let's say you had a vanishing premium product on which the policyholder was expecting to say, 10 premiums. Interest rates have dropped and those 10 premiums are probably not going to be sufficient. Is the key just communicating to the policyholder or should the expectation be reflected in projections?

MR. CHAPMAN: What I was really alluding to is the illustration that is originally given to the policyholder that creates a sudden expectation in their lives. They are sophisticated enough to know that it's only as good as the interest rate assumption. Should interest rates change in the future they would expect to receive either more or less interest credited to their contracts. The thing that is important is that the credit interest rate is some relationship to what interest rates were when it was sold and what interest rates are currently. If you have a situation where interest rates are generally rising, then the reasonable expectation from the policyholder's point of view is that he is to receive greater value than was originally shown in the illustration and vice versa. So I believe that what is important long term is that the product delivers value that has some meaningful relationship to those demonstrated on a piece of paper when first purchased.

MR. RODNEY C. WILTON: I was wondering what would happen in an asset portfolio backing interest-sensitive products which had a reasonable amount of C-1 risk. What would happen if a year came along with a substantial asset default so that you had an effective rate of return that was considerably below your trend line but you really didn't expect it to continue year after year?

MR. CHAPMAN: I always have problems answering these hypothetical questions. Obviously no investment is without risk. It is generally perceived that investing in Treasuries is riskless but nothing could be further from the truth because of all fixed income investments, certainly Treasuries have the most significant volatility. I think you need to look at the historic relationships between various investment forms. Obviously the future could hold something that has not occurred in the past. That certainly seems to be the best starting point. Volatility, as credit risk increases, diminishes substantially. So you find yourselves trying to balance interest rate risk with credit risks and most of the problems encountered by all financial intermediaries in the past have been primarily the interest rate risk and not credit risk. I think the interest rate risk is substantially greater, if one could quantify it, than credit risk is. If whatever the structure of your portfolio is, if one sector of it does not perform well, obviously that would reflect in terms of what one could afford to credit to the existing contract holders. Obviously it is dependent upon the success of your investment strategy. Also, I think it is important to have an investment strategy and to follow it rigidly.

MR. ROBERT J. LALONDE: This question is directed to Allan Chapman and to anyone else, of course, but it has to do with the Supreme Court's unwillingness to listen to the case on annuities as to whether they would qualify as a regular annuity or would be subject to the investment laws of 1940.

Allan, have you had a chance to look at that issue? There was some discussion in the *Wall Street Journal* about if there was excess interest in an annuity and the risk was shifted, it would be some kind of investment type contract that had to be registered. Then it sounded like there was something you could do to the contract, perhaps guarantee the interest rate for a period of time and then you would not be subject to those registrations. It seems like it would have a retroactive effect and if there is a retroactive effect, that might suggest some kind of repricing.

MR. CHAPMAN: The broadest reading of it would affect basically all of the products that we sell. But the safe harbor under 151 has caused us to pull a couple of products from the marketplace. They are not big producers as far as we are concerned so that's the only action that we have taken as a result of that.