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Session 11PD Understanding and Managing Annuity Risks

Track: Product Development

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Summary: The panel identifies the risks in various annuity products and the product-development actions that can enable an insurer to manage the risks. Attendees gain an understanding of the features that create risk in annuity products and how product design and product management steps mitigate it.

MR. MICHAEL O'CONNOR: The topics we're going to talk about are:

- Variable annuities, from a direct writer's perspective.
- Reinsurance, primarily variable products.
- Managing and pricing products, mainly fixed annuities.

Our first speaker today is Scott Priebe from Mutual of Omaha. Scott is a managing actuary there and has seven years of experience pricing fixed and variable annuities. He is currently in the Variable Annuity Design Unit. He'll be focusing on variable annuities.

Ari Lindner will be the second speaker. He is vice president and life actuary at ACE Tempest Life Reinsurance in Bermuda. He's primarily responsible for product-development pricing, marketing and negotiating agreements to reinsure death and living benefits associated with variable annuities.

I'm Mike O'Connor. I joined Tillinghast about a year ago and, for 21 years prior to that, I

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Note: The chart(s) referred to in the text can be found at the end of the manuscript.

was with a couple of companies working on fixed and variable annuities, GICs and funding agreements, from pricing, product development, reserving and asset/liability modeling perspectives.

MR. SCOTT PRIEBE: Bob Ozenbaugh was originally scheduled to give this presentation. I'm a last-minute substitute. Today I'm going to talk about variable-annuity risk, mainly from a pricing-actuary's perspective.

When we designed these products, we tried to balance three interests:

- The interests of our distribution, to make sure that they're comfortable selling our design.
- The interests of our customers, to make sure that the charges are equitable with the benefits they receive.
- Our company's interests, to make sure that our required rate-of-return is met with each design alternative.

Today I'm going to discuss three of the major risks:

- *Persistency and revenue*. This is the risk of a recovering our acquisition costs.
- *Death-benefit risk*. Examples are guaranteed-minimum death benefits (GMDBs) and enhanced-earnings death benefits (EEDBs).
- *Living-benefit risk*. Specifically, I'm going to cover guaranteed-minimum income benefits (GMIBs) and guaranteed-minimum accumulation benefits (GMABs).

There are too many designs out there, with the proliferation of these riders. For example, one of the latest designs is the guaranteed-minimum critical-illness benefit. Of course, the one that we're trying to perfect right now at Mutual of Omaha is the "guaranteed-to-cover-your-assumptions benefit." This is a pricing-actuary's dream. As we go through this presentation, you'll see why I call it a dream.

We look at persistency and revenue risk as one of the largest overall risks in these base policies. The reason is the costs are already incurred. You've already spent, on some policies, 8-10% in commissions and setup costs to put the policy on your books. So the question now is, will the policyholders stick around long enough for you to recover your costs? And will the market be beneficial to you and show enough growth so that you meet your return requirements?

We've identified several features that may be able to improve persistency. There's not a lot you can do about making your policy have a better return than other policies and still try to balance some of the other interests.

Of the features we looked at, GMIBs usually offer the policyholder a guaranteed payout, which can start in seven to 10 years. The idea is to make sure the policy stays around for an extra couple of years to increase your revenue during that time.

Another idea is GMDBs, which restart at the end of the surrender charge period. The reason for this is, when we were investigating higher than expected lapsation, our brokers gave us — as a policyholder — an incentive to roll to another policy, was mainly that the death

benefit restarts. If you can find a way to embed this benefit inside your base policy, you may be able to improve your persistency.

The third idea is EEDBs. When these first entered the scene several years ago, the common thought was that these would have a great effect on persistency. The reason was that the accumulation values would increase and the policyholder's death benefit would increase as well, and they could see that. Now the idea is that they can't easily transfer that, because the taxes are based on the gain in the policy from issue. Recently, there have been some designs out there — some clever actuaries have created policies — that allow you to roll your death benefits over to certain riders. It should have a reduced effect on persistency, but, still, it's going to be more positive than not having it.

Another idea is GMABs. These usually offer a certain return-on-premium (ROP), as long as the policyholder sticks around for a certain duration. The idea is that you're giving the policyholder an additional incentive to stick with your policy.

Of course, you can always pay additional commissions. If you haven't priced it into your policy from the get-go, you may have to balance the idea of having an improved persistency — versus paying out unplanned commissions — as a way of conserving some of the business. What we like to see are, pricing into the base policy, commissions that start at the end of surrender charges. This gives the policyholder and the broker an incentive to stick around and keep the policy with you.

The last item is renewal bonuses. These are bonuses that are paid to the policyholder as a percentage of account value, which gives the policyholder an additional amount — for example, 2.5% — if they stick around for a certain period of time.

The challenge with these designs is that they're going to increase your filing effort, mainly because they include recapture provisions or surrender charges. You're going to increase the filing effort, especially with the SEC. Getting recapture provisions approved through the exemptive-relief filing effort is quite a considerable challenge when you're taking away bonuses after the end of the original surrender-charge period.

Chart 1 takes a base policy, a seven-year surrender charge, a base mortality and expense of 140 basis points and models it over 10,000 scenarios. We discovered that our mean return was 12.9%. When we increased our persistency by 20% after the end of surrender charges, we increased our mean by 80 basis points, as a percent of first-year premium. This by itself may be enough to offer some of those benefits I discussed before. So it's something to consider when you're evaluating whether or not to include some of these benefits as part of the base policy.

Moving on to death-benefit risk. Death-benefit costs are going to vary by a lot of different assumptions. However, I'm just going to cover issue ages, as well as return and volatility assumptions in your sub-accounts.

There are certain design techniques that you may be able to look at to reduce your age exposure:

- You can always limit issue ages. However, that's unpopular with your sales

distribution as well as with policyholders.

- If you have an anniversary value benefit, you can always limit the last ratchet to a certain age. For example, the policyholder's age is 85, and you limit the last ratchet to age 80. The benefit is going to look at every policy anniversary up to age 80 and pick the highest benefit.
- Another idea is to have the benefit revert to ROP after the policyholder reaches a certain attained age. This really takes a benefit into account inside the policy.
- The last item is percent of premium caps. This is seen mostly on enhanced-earnings death benefits, as well as guaranteed ROP-type benefits or rollup benefits, which guarantee five percent interest in accumulation on premium for GMDBs.

Chart 2 illustrates the limitations that we price in, if you have no age limits, versus having the last ratchet at age 75, versus having it revert to ROP at age 75. What we notice from this is that, for issue ages 50 and 60, these limitations don't have a very big effect. That's mainly due to the expected value and persistency in discounting assumptions. However, for policyholders age 70 and age 80, these benefits have a much larger effect. One thing that I see is that, for a policyholder who has a limitation of reverting to ROP, expected death-benefit costs are fairly level along the different issue ages. If you're charging one flat charge for everyone, no matter what age, this really brings an equitable benefit for every policyholder.

Chart 2 basically takes the present-value cost and amortizes it over the lifetime of the block of policies for a sample population. For example, if you have no issue-age limits, it may be 19 basis points under these current assumptions, as far as your annual cost. If you take the issue ages to age 75 and revert to an ROP at age 75, or issue ages below that, you may be able to reduce that cost by 10 basis points per year. As I mentioned before, your sales distribution doesn't like age limitations. However, we found that they have been more agreeable when we start discussing that, without issue-age limitations, they might have to reduce first-year commissions by 50 basis points or more. We usually find that they are more agreeable to discussion at that point.

Chart 3 illustrates the value of a five percent rollup death benefit among the different issue ages. We have in here 100% of premium, which is basically a base death benefit that guarantees ROP. We also have the limitation of 200% of premium and no cap.

What jumps off Chart 3 is that there doesn't seem to be any value for no cap. This is attributed to lapsation, discount rates and gross annual return. If your gross mean return rises or your persistency increases, the 200% of premium limitation should have a larger effect.

There are certain design techniques that you can consider for limiting return and volatility exposure:

- Most GMDB designs currently align fee revenue with the account value. As the account value declines, fee revenue for that death benefit declines. However, death-benefit exposure may increase dramatically. So, if you align your fee revenue based on the actual death benefit, maybe you'll be able to reduce volatility.
- Another idea is to combine benefits. Combine the EEDB with the GMDB, and you

might be able to reduce volatility.

- The third idea is to consider using a reset benefit versus a ratcheted benefit. A ratcheted benefit will look at every policy anniversary since issue, pick the highest anniversary and set that as the death benefit. The reset will use your last anniversary. What we like about reset benefits is that they are a lot cheaper, with an expected cost lower than ratcheted benefits. They also replicate what a policyholder would get by moving to another company, which would be an ROP base feature under a lot of designs.
- You don't really see the next idea on variable-annuity policies. However, you do see it a lot on equity-index policies, and that's averaging inside a ratcheted benefit. For example, if you were to base a death benefit on the last 12 months' anniversary values, you may actually be able to reduce expected costs and still give the policyholder a benefit for the risk of the market declining right before he/she dies.
- You don't see the last idea on variable-annuity death benefits. However, there is an argument to be made about doing this and about tying death benefits to portfolio-model values. If you were to do this, it's based on the premise that a policyholder — who has all of his money in emerging markets-type sub-accounts — has a higher volatility. So his higher-than-expected cost is going to be a lot higher than a policyholder with all of his money in fixed-income securities, as far as their sub-accounts go. So if you tie these death benefits to certain asset-allocation models, you may be able to take away some of the pricing conservatism, when you determine what your expected cost is.

Chart 4 illustrates the point of aligning your fee revenue with a death benefit. It shows that you may be able to increase expected revenue and decrease volatility. Chart 5 illustrates the distribution of results for an annual ratchet death benefit, a tax death benefit or EEDB, and your annual ratchet/tax death benefit combination, where the policyholder gets an additional percent of the gain in the policy. Here, a gain is defined as the difference between the death benefit and the premium the policyholder deposited.

You can see from Chart 5 that the combination benefit is actually less than the sum of the individual benefits. Also, the volatility is less than the annual ratchet benefit under these current assumptions.

Chart 6 illustrates the differences between a reset benefit and a ratchet benefit. This shows is that you can really decrease your cost if you have your averaging inside of your annual death benefit throughout the period of time. For example, annually, you may be able to save 10-15%. As you extend that out over time, you may be able to cut down substantially on the expected costs.

Chart 7 basically shows a reset benefit versus a ratchet benefit, where the reset benefit is about 60% of the ratcheted cost for the first-year, annual-type benefit. You can see that the difference between the two declines as you extend that interval out.

Chart 8 is a simple illustration of the effect of the volatility assumption on the expected cost. If you have policyholders with all of their funds in highly volatile costs or sub-accounts, expected costs may be as high as what you're paying out in commissions. So it's

one thing to consider.

With living-benefit risks, the costs are really dependent on the basic benefit. For example, issue age may not come into play for a GMAB, except at the older ages. Due to mortality and persistency — when the benefits' first start date comes into play, an older-age policyholder may not be around to capitalize on the benefit. So it does have an effect on the cost, but age is more important for GMIBs, because it determines the payout.

The cost is also dependent on equity growth and volatility assumptions. It also can be dependent on interest-rate return and volatility assumptions for GMIBs. This is because, at the point a policyholder decides to annuitize, will you be able to cover that guaranteed payout?

The last point is persistency. If more people persist than you priced for, you may not have enough funds set aside to pay that additional cost of people electing this benefit. So your persistency assumption is very important on living benefits — however, it's not necessarily a bad thing. Because you have higher than expected persistency, your fee revenue may offset the expected cost of the living benefits.

There are several design techniques available to reduce your exposure:

- You can always move your start date back from the end of surrender charges to 10 years. Maybe you'll be able to reduce the cost.
- You can get more conservative on your payout guarantees. You can change your payout rates to be based on a 2.5% rate instead of a three percent rate.
- You can have a percent of premium caps.
- You can have required portfolio investing. You see these mainly with guaranteed-minimum accumulation values. They depend on asset allocations with a certain amount in less-volatile equities, for example, money markets or fixed-income-type securities.
- This last point you don't see in a lot on different designs, but it perhaps could be used to extend that start date back. For example, if you were to base the start date on the later of 10 years from issue or age 65, you may be able to cut down the on cost of policyholders younger than age 55.

We tried to graph a living benefit for a maximum anniversary applied to guaranteed payout rates. However, we discovered that a number of times, where there was no expected cost, this really skewed the results.

All we did was model over 64,000 scenarios, and we took a seven-year waiting period and based the guaranteed payments on a three percent interest rate in the Annuity 2000 table. We discovered our average expected cost was about one percent, and our volatility was 2.3%. There were about 40,000 trials where the benefit didn't come into play. We moved back our waiting period. We were able to cut our costs almost in half. Volatility declined by one percent, and we added about 4,000 policies where the benefit didn't enter the picture.

The last point is, if you grow more conservative on your payouts, and base it on a 2.5% interest rate and project your mortality table, you can reduce your cost and volatility. Now,

again, there are about another 4,000 policies where this benefit doesn't come into play.

In conclusion, I want to emphasize a point that has been touched on a little bit throughout this presentation. You want to make sure that, when pricing these benefits, you have consistent assumptions throughout. This is because, as you change your assumption, you may have a higher risk exposure on one side of the benefit. With another benefit in the policy, however, the assumption may actually reduce the exposure, so it may net out the expected cost. Another idea is for a living benefit with increased persistency to increase the expected cost, but the extra revenue might be enough to pay for that.

So the next time that you're trying to find a compromise between your customers and your distribution, hopefully these ideas will give you a chance to make sure that everybody goes away happy. There's not much that I can do about guaranteeing your assumptions, but perhaps you can increase the likelihood of meeting your assumptions.

MR. ARI JOSEPH LINDNER: I entitled this, "What, Me Worry?" — which some of you may recognize. The answer to that question has changed a little over the last 10 years — back and forth, from yes to no to maybe. I hope that when I'm done, the answer will still be yes, but maybe a more-informed yes.

What I want to do here is expand on what Scott said and concentrate on:

- The GMDB risks.
- The guaranteed-living-benefit (GLB) risks, as I've seen them working for reinsurers for the past six years. I'm trying to look at it from your perspective, so hopefully I won't be too far off.
- A few more GMDB/earnings-enhancement benefit (EEB) risks or tax-relief benefit risks.
- Some more GMIB risks — a little more expansive than what Scott talked about.
- Ways to mitigate the risks through product design. There's going to be a little bit of overlap, so I'll go through that quickly.
- Other risk-management techniques.
- A thrilling conclusion.

This first list of risks I put under the heading, "Point of Sale." These are risks that you take on when the initial deposit is made. These are the risks of the things you have to worry about when you are pricing-out the benefit:

- The age of the population. Most companies have an average issue age around 60. If, for some reason, yours is age 70 or age 50, which is a pretty big difference, you have some interesting things to think about when it comes to your death-benefit and EEB risks, because these are obviously options that pay off upon death. The mortality really starts to shoot up once you get into the high 60s and 70s ages.
- The health of the population. If, for some reason — and again, a lot of this may be outside of your control to a certain degree — but if somebody is purchasing a bonus product or something on his deathbed, you've got some problems.
- The male/female split (gender mix) will affect your mortality.
- If you have a first-to-die death benefit payable, the number of policies you write to joint annuitants will make a big difference. Obviously, the first-to-die mortality rates

are a lot higher.

- Policy size and asset concentration. You have two separate problems here. One may be that your policies are just too small, and you have a lot of fixed expenses and things that are difficult to cover with very small policies. The flip side of that is an asset-concentration risk. If you have a whole lot of \$20,000 policies and one guy with \$20 million bucks, you're going to have some problems if that person happens to die in the money. It won't make any difference what happens to all of the other guys.
- Asset allocation is another point-of-sale risk. You don't know what people are going to be putting their money in. If you look at an average exposure of where people are putting their money, it's mostly in equities. That may have shifted over the last six to 12 months, but if it varies from what you thought it was going to be, the cost can be very different.
- Some companies tend to have a very different enhanced-benefit "take rate." I'm talking about the EEB but also the income benefits and some of the others. If you've priced these out together and assumed that 25% of the policies were going to take the EEB, and it turns out to be five percent or 75%, with one benefit subsidizing the other, in terms of cost, you may have some problems.
- The last one, which is the most fun, is your model and your pricing risk. I put this under point-of-sale risk, but basically, you go to the market with a product with a specific design and a specific cost. If, for some reason, your model has some errors, you may find down the road that you want to make some changes and that what you sold was maybe not what you thought you had sold.

The next list is the "After-Sale Risks." This is what happens after the deposit has been made, as the policy runs its course:

- Obviously, we all know that investment return/volatility and mortality are the two major drivers.
- Also included are lapse and annuitization — and I put annuitization under the death-benefit risk, because annuitizations work like a lapse. It gets people out without paying a death benefit. In these cases, lapse/annuitization is the persistency. You hope — from a death-benefit and EEB perspective — that persistency is very low. If everybody leaves, then they can't die and collect on their death benefits.
- You also have asset-transfer risk. One of the big selling points of variable annuities is that you can transfer your money around inside without any tax consequences. You run the risk that the market will go down eventually — I don't know when that might happen — and that people will transfer their money subsequently into lower-return, lower-volatility funds and have a difficult time recovering. If you haven't made such assumptions in your model but assume that all the money stays in equities, and then the equity markets shoot up next year 40%, which we all hope they do, nobody is going to be around to take advantage of it, because they all moved their money to fixed-income funds. You may have some problems.
- Anti-selection is a fun one for me. We're always trying to figure out what is in this policy, what is in this benefit, and in what way can we be gamed by the policyholders. The easiest one and the one that most companies thankfully have eliminated from their product design is the dollar-for-dollar reduction of the death benefit on partial withdrawals. I've said this in every speech I've made for the last

four years, so if there is anybody who doesn't understand why that's an anti-selective feature, you can see me afterwards. I won't bore you with it.

- Legal and regulatory risk can be an issue of tax-laws change. You may not have the same population or the same asset mix as you might have expected, and persistency may change down the road and be different from what you expected. Then you may have some legal risks/market-conduct issues, especially with death benefits. Moving a policyholder out of a policy where there's an in-the-money death benefit may count as a market-conduct issue. I realize I'm stepping a little bit outside of my area of expertise here, being a reinsurer, so if I'm wrong, you can ignore that.
- The last one here is income-statement volatility. Even if your benefits aren't paying, you have reserves and capital to worry about, and some of those things are going to flow through to the bottom line. Even if you didn't have to pay claims, and everything works out great, that may not help you this quarter or this year, and you may not be around to be slapped on the back three years from now when everything turns out OK.

There are additional risks in the GMIB. I didn't want to list all the other ones again. They pretty much all apply, but the additional ones that weren't mentioned in the death and living benefits include:

- The annuitization rate. Nobody really knows what that's going to be. We may get a chance to find out in the next couple of years, as some of the early seven-year GMIB policies come due. The waiting periods will expire, and people are going to be in the money probably. But nobody really knows what that's going to be. Will the annuitization rate be five percent, 20% or 50% per year? It's hard to tell. Being that annuitization is the option exercise cost for the GMIB, it's an important assumption and risk.
- Interest rate is a risk more for income benefits than it is for death benefits. As the interest rate changes, the differential between the guaranteed-annuitization factors and your current-annuitization factors will change, and we all know that differential is really what makes these things sellable. As that differential shrinks, the claims and the potential claims go up. You don't have to be as in-the-money, so to speak, to be in-the-money for your income benefit as that differential changes.
- Longevity is the same issue. How do your guaranteed-mortality factors and your guaranteed-annuitization rate meet reality? If everybody starts living to 200, you may have some issues with your guaranteed-mortality rates.

There are some risks that are magnified in the GMIB:

- The model and pricing risk is magnified, and the tail is worse. No matter how bad the death benefit gets, only so many people are going to die every year. Even if it's worse than you thought, it's still not going to be 10%, unless you've got really big problems. For the income benefit, the tail is much worse, and there can be much heavier claims. So your model and pricing risk is increased.
- The annuitization, as I said before, has now, in an income benefit, become the option-exercise cost, as opposed to being simply a way of getting people off the risk, which it is for the death benefit. That risk is more important. The lapse and mortality go together here for an income benefit, because now that's the persistency. When people die, they can't collect on their income benefit.

- Anti-selection becomes huge for living benefits. If you have a dollar-for-dollar reduction of the income benefit on partial withdrawals for the death benefit, the policyholder has the ability to create free life insurance by withdrawing everything but one dollar. For an income benefit, your policyholder has the ability to create free money, which is much more appealing.
- Again, legal and regulatory risks are important. Here I'm talking about market conduct and sales practice and making sure that everybody — your marketing force included — understands exactly how the GMIB works. It's not a six percent rollup that you get if you annuitize. You have to remember that there are guaranteed-annuitization factors. Some people may be surprised when they see what the impact of that is and that differential between the guaranteed and the current-annuitization factors. You don't want those people to call their lawyers.

Next, let's look at the GMAB:

- Asset allocation is a huge one. Scott mentioned companies having required asset allocations or requiring you to put a certain amount of your funds into fixed or low-risk buckets. If you don't have that, and suddenly you find people putting money in more aggressive funds than you expected, you're going to be way off on your pricing.
- Again, you have model and pricing risk, because the tail is a lot worse. Here you know you're going to have 100% utilization once they reach the end of the waiting period.
- Lapses here are anti-selection. Again, a lapse or mortality for a living benefit counts as persistency.
- Anti-selection is a big one, and this refers to all the living benefits. If lapses are lower than you expected, the benefit may pay more, but you may get more in your mortality and expenses and your fund charges. The problem is that, if you assume that people lapse their policies intelligently — for living benefits, if it's in the money, like it is today, and everybody decides to stick around and collect — that's not doing you a lot of good. Because that's going to cost you, I guarantee, more than you're going to get back in fund charges. If, on the other hand, things were going great, and everybody decided to lapse because they were sick of paying 30 basis points for a benefit that wasn't worth anything, that doesn't do you any good either. Now you've got less fund charges in a situation where you wish everybody would stick around. So, when you go to price these things out, that's something to bear in mind. It's certainly not going to be 100% efficient, but from the numbers I've seen, lapses in the last 12-18 months on living benefits have been pretty low. I'm not entirely sure, but I suspect that that's a reflection of the fact that they're in the money now. It's probably not as big an issue for death benefits. I don't expect anybody not to lapse a policy, hoping that they die and collect their death benefit.
- Again, income-statement volatility is an issue. Now you're talking about, with the GMAB, a FAS 133 derivative. It has to be marked-to-market, and you have a lot more issues as the income statement is affected.

Lately, we have this GMWB floating around — a guaranteed-minimum withdrawal benefit. It promises that, if you take no more than six-seven percent of your initial premium every year, you will get your full deposit back. So if you put in \$100, and take no more than \$7 a

year, you will get your \$100 back, even if you run out of money before you get your \$100 back. The risks include the following:

- The biggest risk that I've seen for this, in modeling it, is the utilization. How many people are going to do it and when? If everybody does it, and starts taking their \$7 the first year that they're in, that's a very different cost than if everybody waits five or 10 years to take it.
- The age of your population is going to be a magnified risk because of that feature. I would assume older people would be more likely to take that money out.
- Regarding model and pricing, again, the tail is bigger. You may end up with some pretty heavy costs. It's not quite a GMAB, but it's pretty close.
- Short-term investment return and volatility are also a risk. If a person has \$100 and is taking out \$7 a year — so, in the first three or four years, he's taken out about \$28 — and the market has also, in the interim, gone down 25% or 30%, now it's at an account-value level that, no matter what happens after that, it's going to be hard to get back to a level where it can afford to pay the \$7 a year until he gets his full hundred. So, if things go badly in the first three or four years, you're out of luck after that, because there aren't enough assets left to rebuild.

With respect to mitigating the risk through product design. I'm going to talk about some things that overlap a little bit:

- Maximum issue age — controlling the age of your population.
- Health of the population. We've seen waiting periods, especially on things like the EEB or the tax-return benefit. Premiums deposited in the 12 months leading up to death don't count.
- Gender mix. There's not much you can do to control the male/female split.
- Joint policies. You can mitigate that risk by making your GMDB last to die, rather than the first to die. That actually improves your situation, because then your mortality is better than for a single life.
- Policy size and asset concentration. Most companies have minimum and maximum policy sizes — \$1,000 or \$5,000 on the bottom end, and \$1 million on the top end — which doesn't stop the marketing folks from coming to you every three months saying they have somebody with \$20 million dollars they want to put in. But at least it's in there, and you have that under control.
- The asset allocation can be controlled through a restricted or required allocation into different buckets.
- The "take rate" on the enhanced benefit. Some companies are bundling the offsetting benefits. The death benefit and the EEB, as we saw, do not cost together the sum of what they cost separately. They cost less. So if you're counting on having both of them in the same policy, it's nice to bundle them as a positive. At some companies I have seen, you can't get the EEB unless you've taken an enhanced death benefit. So that helps to fix your take rate or at least give you a better feel for what it's going to be. Alternately, you can simply price each benefit on the standalone basis. That way, for policies that take both the death benefit and the EEB, you're actually getting extra money, because you didn't really need to charge that much.
- The model and pricing risk can be mitigated by simplifying your product — simplifying the benefit. If there aren't a lot of optional features and monthly ratchets

— the weird things that people are always loving to come up with, and all that great innovation that keeps me employed — then you would have a lot less risk that your model would be off.

- Most of the after-sale risks can be controlled if you have the ability to change your death-benefit and living-benefit charges. Some companies have this, and some don't. They have a current charge and a maximum charge. Obviously, there is a lot of market pressure not to raise your charges on your in-force policyholders, but it is there in some prospectuses, and if things get ugly, you have that ability to charge a little more for it.
- Regarding anti-selection. you can eliminate the features with policyholder options. There are still some benefits out there with optional resetting of your guarantees. This makes it very difficult to mitigate the risk in any meaningful way, once you've taken that on board. Again, there are the proportional benefit reductions on partial withdrawals.
- For your legal risk, I would recommend a simpler and an as-transparent-as-possible benefit design. If these income benefits seem like a great deal to people because it's a six percent guarantee on their money when they annuitize, maybe they don't entirely understand that extra. But it's the fact that the guaranteed annuitization factor is not at current, and that could cause problems down the road.
- You can include a longer waiting period. We saw that the difference between a seven- and 10-year wait GMIB was pretty substantial. Also, commissions are paid on GMIB annuitizations. If you have lower-than-normal annuitization commissions or no commission paid and the policy/GMIB annuitizes, you obviously will have less GMIB annuitization.
- Interest rates and longevity can be controlled through a lower guaranteed interest rate — we saw the difference between a three percent and a 2.5 rate — and a conservative guaranteed mortality table. Again, the wider apart those two factors are — the farther your guaranteed interest or mortality is from current — the fewer claims you have to pay on the GMIB.

There are other risk-management techniques:

- This one I like to call "wishful thinking":
 - The stock market will go up forever. That doesn't work too well.
 - Interest rates will never go below three percent. You can ask the Japanese about that.
 - The utilization and the anti-selection — how many policyholders are really going to do that? How many policyholders could possibly take a partial withdrawal to game a company? Probably not that many. Unless it's on "Oprah" or the "Today Show" or something like that, and then maybe a lot. Again, it's hard to mitigate those.
- How many policyholders are ever going to GMIB annuitize? Annuitization rates are one percent. What could they be — two percent? Or 20%? We don't really know.
- How many are going to stick around long enough to collect on their GMABs? It's a 10-year wait, and there's a seven-year surrender-charge period. The agents are going to move the money after seven years, unless it's in the money, and then they'll probably

all want to stick around and collect.

- Another risk-management technique that's talked about frequently is capital markets techniques/derivatives:
 - You have a choice between static and dynamic hedging.
 - This is somewhat of an oversimplification, but some of the advantages are that there is a lot of capacity and plenty of option writers. It's not that hard to find somebody who is willing to write you an option.
 - The risk coverage is unlimited. If you purchase an option with a strike, that's the option you bought. No matter how low the market goes, you're going to get paid.
 - On the other hand, you have some disadvantages and significant basis risk involved. You cannot buy an option on these actively managed funds, where the policyholders can transfer their money around at will. It requires an upfront payment for the option, whereas you get paid over time monthly as well as a varying amount as the market moves. The upfront payment is another problem in that, if persistency is off, you may not make it. If persistency is too low, you may not make enough money back to pay off the option that you bought in the first place. So there tends to be a potential disconnect, which can be pretty large, between what you receive from your hedge assets and what you actually pay in claims.
 - It tends to require a fairly heavy investment of resources, either to pay somebody to design a hedge program for you or to hire a pretty big staff to do that. There are companies that have done it, but it requires a critical mass. If you're writing \$50 million or \$100 million per year in variable annuities, it's probably not going to be worth it.
- My favorite subject is reinsurance. It has advantages and disadvantages. Here are your choices:
 - First-dollar risk. You can have the reinsurer pay claims starting with dollar-one.
 - Excess-of-loss. You can take a retention or a deductible.
 - Risk-smoothing programs. You may have seen these around, where the actual risk transferred is not that much. It's over a long period of time, and it doesn't cost as much.
 - The advantages of reinsurance are that it eliminates the basis risk. The claim you receive will be the same as the claim you pay, subject to whether you took a deductible or some of these other issues.
 - It tends to be more customizable than the options. Once you start customizing options, the number of players willing to write you those options is a lot lower, and it starts to get complicated. Whereas most features — deductibles and limits and things like that — can be played with, and most levers can be moved when you talk to your reinsurer.
 - It doesn't require as many resources or a critical mass. The \$50-million and \$100-million writers annually can still get this.
 - On the other hand, as we all know, there's just not much reinsurance capacity out there. Those who have followed the industry for the last few years have

- seen some people in, some people out, and some people going back and forth.
- o There are always limits — time and claim limits and dollar limits — which you don't get on your options. There's some kind of limitation. You can't just reinsure 100% of your death-benefit risk and go to sleep.

In conclusion, the benefit designs should be considered very carefully. You have a lot of different issues, and a lot of things can go wrong. You want to make sure that you've thought very carefully about what you've included in there. Just because something costs more or may create higher claims, that doesn't mean you can't include it in there, but you don't want to be surprised that it does after you've included it.

The next two things I've said in a lot of different speeches:

1. You don't have to manage risk that you don't take on. If you're very concerned about anti-selection or older ages or whatever, write it out of the policy. Don't take 90-year-old issues. Cap off the benefits at attained age 80 or something like that, because that will make your life a lot simpler.
2. The best risk-management tools will not solve any problems you've created through poor product design. I've seen a lot of them. Once you've written the policy, and it's not designed well, and things have gone worse than you expected, and things are in the money like they are today, some people are better equipped today with their unreinsured, unhedged inforce — and everybody's is in the money. But some policies are much better designed and better equipped to locate and obtain risk mitigation, whether it be through capital markets or through reinsurance, and some are not. It has to do with how the product was designed five years ago. So these are the things to think about today.

Derivatives and capital markets solutions tend to be effective in dampening the impact of disaster scenarios. However, as I said before, the claims that you pay are not matched directly by what you're going to get from your hedge assets. If you've purchased put options, certainly, as the market goes down, you're going to get paid something, so you've dampened the effect. But you obviously haven't paid a one-for-one correlation. A lot of companies lack the critical mass of the capital-markets expertise to implement an effective program. To go forward and implement a program that's not effective is almost worse than doing nothing at all, because now you've paid for assets that aren't doing you a lot of good, and you have accounting problems because your assets are marked-to-market and your liabilities aren't, with death benefits and some income benefits. So you have a lot of different issues. You want to make sure you do it right. Reinsurance is available, by the way. I can't resist saying that.

The title of this session is "Understanding and Managing the Annuity Risk." You can't manage it if you don't understand it, and you can't understand it, if you don't have the data. The data has to be good. It has to be timely. It has to be accurate. If your data is in bad shape, you have to start there. You cannot start designing a capital markets program. You cannot go to your reinsurer. You cannot go to the regulators or anybody with anything meaningful, if your data is bad. You can't manage it if you can't measure it and don't understand it.

MR. O'CONNOR: I'm going to be focusing more on fixed annuities. I will cover a broad array of products, rather than go into a lot of detail on specific issues with respect to specific products, like an equity-index annuity. What I'm going to try to accomplish is a sprinkling of thoughts about how to look at risks and the different types of risks there are for different types of products. At the very end, I'll also talk about ways to manage some of those risks.

Obviously, the first step you need to take is to understand the market that you're in and the profit drivers. In the past, a lot of this was done on a deterministic basis. Over the last several years, since the mid-'90s or so, more and more companies have done this on a stochastic basis. But even here, there's been a shift of focus, on fixed annuities as well as variable annuities, in terms of how you should be pricing. Should you be pricing at the mean or at a higher percentile? And if you are going to engage in a risk-management process, you should reflect the cost of that process — whether it's reinsurance, some type of dynamic hedging, static hedging or whatever.

You definitely have to analyze your primary profit drivers. It helps to point this out to management in terms of how profits can be affected by extreme scenarios. It also helps to develop rules of thumb. For example, if you wind up achieving X basis points less spread over a product's lifetime, that will reduce the ROI by one percent — or some other rules of thumb that are being asked for by the people managing the business.

Who should do this really varies by the organizational structure, in terms of who is doing the original pricing and product development and who's doing the product management. In some organizations it's the same group doing both, and in some organizations, you have different groups doing the product management versus the product development. That complicates the issue of how you hand off information and knowledge to the people who are going to be managing the business and to those in the financial-reporting area.

Among the main profit drivers,, the main measure is spread, which is an all-in measure of a lot of things that affect profitability. The investment returns, crediting-rate strategy, persistency, expenses, commissions, internal-marketing costs and surrender-charge levels — spread brings all that together in one measure. But it's these other drivers that impact the spreads, and these are the things you really need to focus on.

I'm going to talk about several types of fixed annuities:

- Regular deferred annuities. An example of one is the bank-channel annuities. Over the last several years, in the nonqualified market outside of the bank channel, the surrender-charge periods have crept up and so have the corresponding initial surrender-charge levels.
- Equity-indexed annuities have very specific types of profiles, from both the product-development and product-management perspective.
- Over the last two years there's been more growth in what is called a general-account market value adjustment (MVA). This is an annuity with an MVA if interest rates change, but with a floor guarantee to the surrender value. The MVA floor is similar to the floor in an equity-indexed annuity, and that's what allows it to be in the general account rather than in a separate account. If it has no floor, it's a security, and it has

to be a registered product. This has been a real growth product in the bank channel.

A couple of other niche products are:

- Two-tier annuities and 403(b) annuities. What I mean by 403(b) annuities in this context is in the payroll-deduction setting, where you're getting ongoing renewal premiums from teachers in the K–12 or university systems.
- I will also talk about single-premium immediate annuities (SPIAs).

A typical product in the bank channel has a surrender-charge period of seven years, with surrender charges grading from seven percent down to zero. What's important to know here is: What's your market? What's your competition? To develop a product and come up with a spread management process, you have to understand who your competition is. In the bank channel, a lot of the competition is from the bank CD products. During the past year-and-a-half, CD products have not been attractive, because many of the CD products are priced at the short end of the yield curve. At the very short end of the yield curve, the Treasury curve has dropped significantly, so many CDs have not been as attractive as a fixed annuity.

The crediting-rate stability is probably more critical in this type of environment — especially with what happens at the end of the surrender-charge period, but even at the first renewal period. If you get into a situation where you want to drop the crediting rate to achieve your spread in the second policy year, you could be jeopardizing your future relationship with that institution.

One interesting type of product that has come along, maybe three or four years ago, is what is called a proprietary product, where the bank itself might be the money manager of the funds behind the annuity. This brings a whole list of other issues that you need to work through in the product-development process and probably also in the product-management process. For instance, if the bank is managing your money, what type of guidelines are you going to give to them? How will you monitor compliance with the guidelines? What happens if a third party can sell bonds at losses, and you have a drop in your total surplus? You have to think through the implications on your capital-management process. What are the costs of that money management? And how are the two parties going to work together to set the initial rate and the renewal rates? This is an example of the issues that will be there for whoever is doing the product management, but they really need to be thought through up-front, so you don't wind up six months later finding some unpleasant surprises.

In the nonqualified market over the past couple of years, many products have migrated to very high surrender charges compared to several years ago. The duration of those surrender charges are longer too, and not surprisingly, there are higher commissions as well. Frequently, these types of structures have either a bonus interest rate — an extra one or two percent in the first year — or they might have higher or more liquidity available in the product. The liquidity available in the product has some advantages and some disadvantages. The disadvantage is that you might have to have a lower crediting rate overall. But from one perspective, it's an advantage, because if your customers are going to have a lot of systematic withdrawals, then more and more of your cash outflows are known with some certainty. Do people know what a systematic withdrawal is? For example,

the owner might take out his or her interest earnings periodically, or if it's a qualified product, it could be the required-minimum distributions when you get to be age 70½. So, if you are in a market where a lot of your money is going to be going out, either in the form of a required-minimum distribution or systematic withdrawals, more of those cash flows are going to have a greater degree of certainty around them and, hence, less risk. Like a lot of annuities, the surplus strain can be an issue with these products, if, for instance, your surrender charges initially don't get close to the amount of commissions you're paying out.

Equity-indexed annuities are one of the more interesting designs, in terms of how the product-development process and the product-management process really need to work together. The profitability of this type of product is similar to a variable product, in that it does depend on the long-term growth of the index. If the index is flat for several years or negative, and you're crediting zero percent interest, the accumulation value is probably nowhere near what you had originally anticipated.

There's been a real proliferation of mechanisms to determine the equity-indexed annuity (EIA) crediting rate. There's an amazing amount of complexity in some of the policies I've seen.

Hedging gets into expenses, in terms of who is going to be doing the hedging and what type of infrastructure costs you're going to have internally to do that. It also gets into issues of product management, in terms of how much business you have coming in the door, and if you want to go out and buy a hedge. Let's say you issue policies weekly, but you're only issuing \$.5-million of premium a week of this particular product. You could go out and buy an over-the-counter option, but you're not going to get as good of a price as you will if you go to an option writer with \$5-million of premium. So there is an impact on the pricing, in terms of what it's going to cost you to buy the hedges, depending on volume. This is an example where pricing design can help you. If you have an annual ratchet product, for example, after you've been issuing business, even though you may only be issuing a half million a week, after a year, when business starts renewing, that's going to build up your volume per week and allow you to get better pricing in the market when you go out to the over-the-counter parties to get your hedges.

There's always going to be some slippage in terms of what persistency you are expecting versus what you actually get. Again, I think this is where a design can help you minimize that risk. If you're only worried about a one-year time frame, you probably have some degree of confidence about how much your lapses are going to be over the next year. If you're looking at a seven-year term product, you're guessing what your persistency is going to be at the end of that seven-year term. That's a lot more unknowns going on in a much longer time frame. So, again, product design can reduce that type of risk.

Regarding financial reporting, Ari mentioned FAS 133. For companies that have these types of products — and I believe all companies had to adopt FAS 133 as of this past year-end — it does make GAAP earnings more volatile, depending on the design. Frankly, some issuers are starting to wonder if it's worth the hassle or the earnings volatility. The volatility can be greater if you have a longer-term point-to-point contract, as opposed to a one-year annual ratchet.

With a general-account MVA, for both product development and product management, you have to monitor your spreads and get that input from your investment department a lot more frequently. Because spreads change, the yield curve shifts, and if you're quoting a three-year guarantee or a five, seven, or 10-year guarantee, you have to be able to react quickly. So you have to get timely information from your investment department. Overall, this should have lower interest-rate risk for the insurance company. Although, I'll throw out a caveat related to the floor guarantee on a general-account MVA. In the early years, let's say you're crediting 6.5%, but the floor minimum rate is three percent. So, after one year, there's really only a small amount of cushion, 3.5%, in terms of how much the MVA adjustment can protect you. As time goes on, there's a greater cushion, if you will, between the guaranteed buildup and that floor. In effect, you have a growing cushion over time, and that's what helps with this type of product in particular.

You do have some different regulatory treatments. I believe it's Reg. 151 in New York that governs MVA products. You have the option of having it in the general account or in a separate account, but there is a separate actuarial memorandum needed either way you go.

For segregated portfolios, most states do allow a general-account version, but I'm only aware right now of one state that requires it to be in a separate account. But if you have a segregated portfolio, whether it's in a general account or you have it as a separate account, it does allow you to manage this block better.

A two-tier annuity is a really interesting niche product. Annuitization features are the biggest factor here. A two-tier product is where you have two account values that the customer has access to. The lower tier is the account value that they would get if they surrendered. There's an upper tier that is growing at a higher rate, but it is only available if they annuitize typically over at least a five-year period and, in some policies, as much as a seven-year period. This type of product definitely has less interest-rate risk than a regular fixed product, at least the different flavors or different versions that I've seen.

With the 403(b) design, again, in a school system with ongoing contributions kind of like a 401(k), some of the pricing dynamics are more on commissions, premium persistency, and what average premiums you're getting. From what I've seen, the premium persistency and the average premium size varies tremendously by issue age. If there's a teacher age 35 starting to contribute to a 403(b) annuity, his average size may only be a \$1,200 per year total premium — or \$100 a month. But for someone who is 50 years old might be paying in \$5,000-\$7,000 a year. So it definitely impacts unit expenses. The persistency is also very different. A younger person, after a year or two, might drop off her premium contributions significantly. But someone who is age 50 or so might keep it up for several years. Then, if she retires at 55 or a little bit older than that, the premium flow will stop. So you can get very different types of premium patterns and definitely different average-premium sizes. The ongoing premium flow helps you pay the "heaped commissions," where you might have a 15% commission to the field on the first-year premium, but on renewal premiums, it may be a six percent commission. To recoup that additional first-year commission, you're anticipating a certain amount of additional premium flow in renewal years. This is a relatively "sticky" business. These policyholders tend to be very conservative, and it is

typically sold through niche marketers, brokers, and managing general agents (MGAs).

Obviously, spread management is what managing risk is all about at the end of the day. In several channels, like the nonqualified market, your renewal-crediting-rate philosophy is going to be a big driver of your shock lapse after the surrender charge is gone. If you get very aggressive in terms of decreasing the renewal rate after the surrender charge is gone, you'll probably have a higher shock lapse at that point in time.

Again, persistency is impacted a lot by your renewal-crediting-rate philosophy. (I discuss GAAP unlocking later under managing annuity risks, mainly because that tends to be a big issue for companies who prepare GAAP statements.) And, if your relationship to distribution goes sour, this will definitely cause the persistency to deteriorate.

For management reports, I think you need to make sure that the reports — and now I'm shifting into product management — need to be geared to whomever is responsible for product management. Traditionally, actuaries have done experience studies, and those are useful for actuaries, but they may not be very useful for the people managing the business. Actual-to-expected or actual-to-pricing comparisons will be, for instance, more meaningful measures for somebody managing a block of business.

Again, you need timely input on spreads from your investment department, obviously, for setting your new money rates. But when it comes time for renewal-crediting rates, you have to have figured out how you're going to handle that process. Are you going to try to maintain some type of a new money process? Or are you going to converge over a certain period of time to a portfolio rate? That seems to be a common approach, to merge to a portfolio rate over a three, four, five or even seven-year period. After a certain amount of time, with assets that have been reinvested, many companies try to manage the renewal-crediting rate on a portfolio basis.

Some companies have looked at transfer pricing, where you establish a money-management profit and loss responsibility separate from the product line management. So, the investment income that you allocate to the product line management is a pro-forma investment income, based on a targeted-investment-allocation method. The actual results coming from the portfolio is a way to measure the investment function. I'm aware of a couple of companies that are trying to do this, and it does create a tremendous amount of practical problems. How do you track this targeted asset allocation, if you will, over time? As actual results differ positively or negatively, at the end of the day, the company's bottom line is the bottom line. So how do you get the actual and pro-forma results to converge over time? There are a lot of practical issues there.

Both policy and premium persistency are important. Obviously, premium persistency is only important for products like the 403(b) annuity, but it's probably the major risk.

I think it's very helpful to analyze persistency by distribution. That can be all the way down to an agent, or it could be down to an MGA, or, definitely, if you're working with national marketing organizations, to that level.

When managing annuity risks, on the GAAP side, unlocking can be a real issue for

companies. On the fixed side, it is probably a little bit less of an issue than the variable side today. The main issue for actuaries is that it can become a credibility issue if they can't explain why the bottom line went a certain way because they did some unlocking, or probably more importantly, if they can't communicate this to management. Communication is key to give management an idea of what could happen when assumptions change.

Make sure that the product managers understand the profit drivers. For EIAs, this is getting to be even more important, due to FAS 133.

Surplus strain can actually be a good problem to have. Typical reasons are that there is a rapid sales ramp-up or there's a small company with limited capital. Obviously there are different ways to manage it — through reinsurance; a partner to give you capital; working through your distribution, possibly, to restructure commissions; and product design.

With distribution, the relationships can change over time. I know that, for many MGAs and personal-producing general agents, succession planning is a big issue. So buying distribution is a way to manage through some issues in terms of persistency. But there are other management programs that companies have had at various times: conversion programs, conservation. With conservation, however, the question is, do you really want to conserve particular products?

Capital gets more and more complicated every year. Actually, instead of saying all of the above, it's probably more accurate to say that companies wind up managing to the maximum of the capital formulas from the NAIC, A.M. Best, Standard & Poor's and so on.

You need to understand your source of strain by product. Currently, some companies have to do some analysis to come up with their C-3 factor, based upon some extreme scenarios. What this is doing is linking your capital needs to your asset-liability management strategies. Frankly, that's going to be a big change for the product-development process, which will then affect the product-management process.

In terms of managing interest-rate risk, the past decade or so was probably one of the best environments you could envision, where rates were gradually declining. There were some definite blips along the way, but overall rates came down pretty nicely over the last 10 years or so. But in today's environment, that's one of the reasons why general-account MVAs are more popular. From a company's perspective, if rates were to go up significantly in the future, that's the type of design that's going to give them some protection.

Regarding industry trends. I mentioned earlier that the NAIC is expanding the C-3 capital testing for companies. This will be both for interest-rate risk on fixed annuities as well as investment guarantees on variable annuities. They're hoping to have this in place by year-end 2003.

Rating agencies and state regulators are also getting more concerned about companies' abilities to manage and assess risk. Some of the larger insurance organizations are developing dedicated units for risk management. I think that's going to have a ripple-through effect on companies since this will, in effect, raise the standard for companies. If

you're a rating agency and you're aware of some companies that have sophisticated risk-management capabilities and some companies that don't have it, that probably will become one basis of comparison upon which to differentiate their ratings.

GAAP is going to force a lot of changes. Like I said, FAS 133 was a big step, and fair-value accounting, if and when it comes, is going to make some more big changes.

. Finally, I think the regulators are getting more concerned about companies' abilities to analyze credit spreads and credit costs.

MR. MATTHEW COLEMAN: I'm with Creative Marketing International in Overland Park, Kan. I have a question for the panel, particularly the first two presenters. There was some discussion about the GMIB and the annuitization benefits. I'm wondering if you could comment on the rise of partial 1035 exchanges and their effect on annuitization/utilization?

MR. LINDNER: Just to make sure I understand the question — the increase in partial 1035s and the effect on annuitization?

MR. COLEMAN: No, actually, in the past, annuitization rates have been low, in part, because people don't annuitize. They don't like the benefit. They shop the benefit. They'd rather take a partial withdrawal and have more control. But now, with these high benefits on annuitization and the rise of the tax-free 1035 exchange that can be withdrawn, you can transfer money from one contract to another through a partial 1035, and I wonder what effect the rise of that potential will have on pricing and GMIB, as opposed to having to transfer the entire policy or withdraw and trigger tax consequences?

MR. LINDNER: Obviously, I would think that the more options that policyholders have for what they do with their money — for example, if they can move half of it out and GMIB annuitize the other half, rather than being forced to GMIB annuitize the whole thing — this would tend to increase the utilization, although only half the money is being annuitized. The real danger with the GMIB has always been, and still is, is whether this thing is going to be in the money. Just because you have \$70 account value and \$100 income benefit, that doesn't mean that it's in the money, because of the differentials and the factors. So, from a pricing perspective and a modeling perspective, there's a lot of discussion on what the efficiency is going to be, and whether the curve looks like a mortgage prepayment curve. Also, how many people are really going to do it? The more in the money it is, the more people will do it. Obviously, that's just another measure of efficiency. If it's worthwhile to do it, you would think it would be worthwhile to do it 100%. But obviously, there are liquidity issues and some other things that have historically prevented high rates of annuitization. This would, I think, increase the utilization, but it may not have a tremendous increase on the dollar amount that actually gets annuitized, since it's going to be a partial annuitization for each individual.

MR. PRIEBE: When we were doing market research for our living benefit, we identified a couple of brokers who are very excited about the idea of partial utilization. So, it makes us believe that the utilization rates will be a lot higher than traditional annuitization rates have been. Just by the level of excitement, they're really excited about partial 1035 over to

annuitization. So I would say expect it to be a high rate.

MR. COLEMAN: If I understand correctly, the GMIB benefits require annuitization, say, over an extended/certain period, say, 10 years as a minimum, or less even. If there are high benefits for annuitization, and we, as a profession, are depending on low utilization rates — that the ability through 1035 to have a tax-free transfer through the annuitization, and also for the producer to gain a commission on that transfer — it seems to me those utilization rates should skyrocket. It seems that we should actually see brokers attempting to manage money and provide increased returns by joining the partial 1035 exchange with GMIB benefits or other enhanced annuitization benefits. It's an area of concern on pricing this, especially with products that have been priced prior to the rise of the partial 1035.

MR. PRIEBE: I agree with that, and I guess it comes down to what you're depending on in your pricing as far as your annuitization rates. So it depends on how conservative your design is, with that assumption.

MR. LINDNER: Don't a lot of designs require a life contingent, plus perhaps a 10-year certain period?

MR. PRIEBE: Yes, when we look at the risk, we don't like to see really long certain periods because of the impact that it would have on annuitizations — either life or 10-year, at most, certain period. That's a fair statement — that I would think that annuitization rates would be higher, used in combination with a partial 1035. But again, it does depend on what you used in pricing and how high you assumed it could get. Nobody really knows — even without the partial 1035 — if it's going to be 10% a year or 50% a year. How many people are really going to do this? And when? If you were planning on retiring and annuitizing it at age 65, and you find that you're in the money at age 62, does it make sense to do it at age 62, even though you don't need it until age 65? Your income benefit keeps going up six percent a year. There's no downside to waiting until you're ready. Will annuitization rates be higher than one percent? Probably. But when you say skyrocket, 50% seems pretty unlikely. That being said, we still don't know if that'll happen or not.

MR. DANIEL WIEDRICH: I'm with London Pacific Life & Annuity. Do you anticipate any increased annuitization, even if there isn't any annuitization benefit, like a GMIB or anything related to the partial 1035?

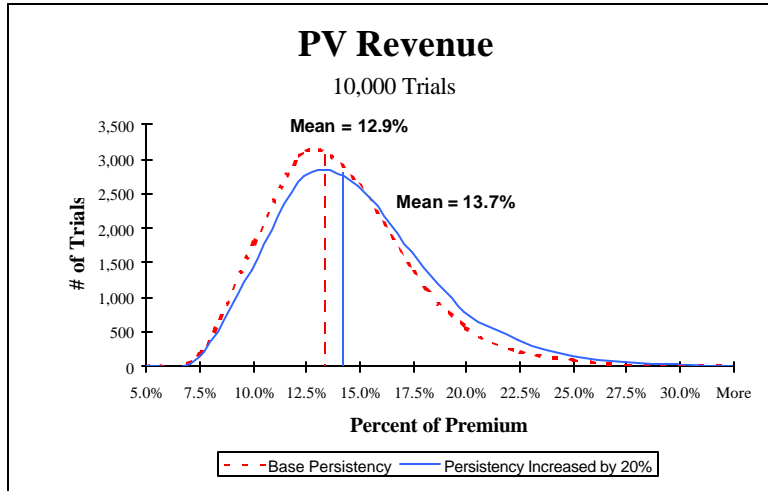
MR. O'CONNOR: I don't know if it's annuitization per se, but there probably are more SPIAs being sold today, like a five-year period certain or 10-year period certain, as more of a tax-planning mechanism or other mechanisms to maximize a policyholder's assets not to be attached under Medicaid. Some products are being sold as deferred annuities with the anticipation of being annuitized, again, for certain purposes like that. But neither of those are lifetime, life-contingent annuitizations typically.

MR. PRIEBE: I think product design seems to be focused or is starting to focus on the payout side and variable-payout annuities with floors and things like that. It depends on what you pay your agents. If you raise the commission for annuitizations, you'll get more annuitizations. If you concentrate on product development to enhance the benefits in the

income or in the receipt of income phase, then you're going to have more, regardless of GMIB or 1035 exchanges. I think, as the boomers start to get to those years, where everybody wants to say now we've ridden this wave up, and as the assets accumulate, we don't want the assets to go out the door when the guy is ready to annuitize and ready to retire. I would expect that the more product innovation there is in the annuity market, the more you're going to start seeing that.

Chart 1

Revenue Effect on Increased Persistency

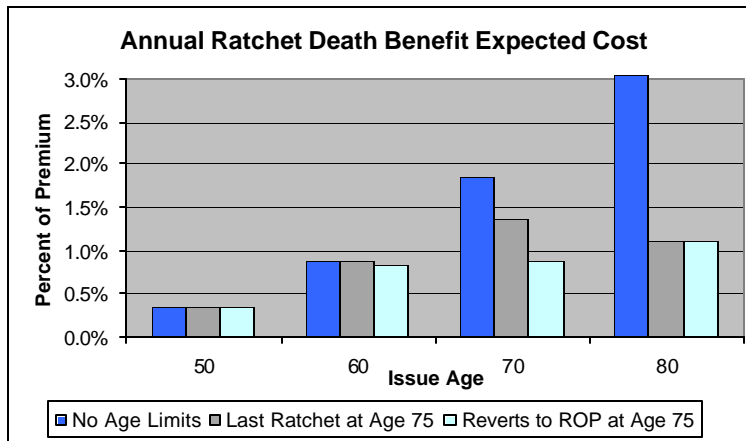


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Chart 2

Death Benefit Risks by Age



Average Cost in basis points

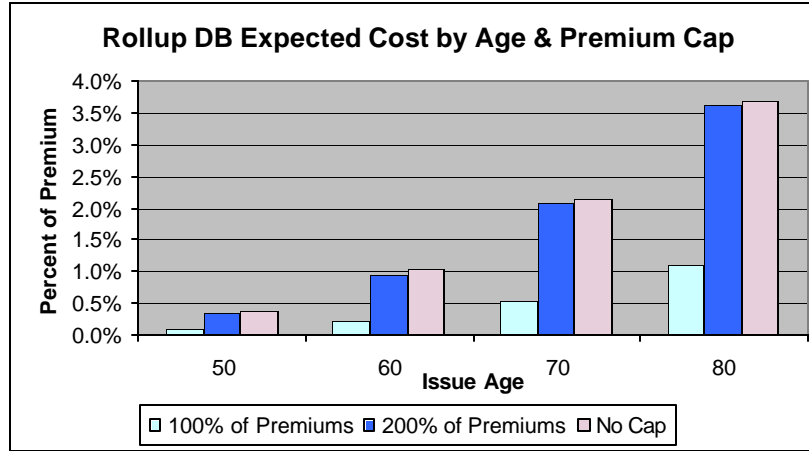
No Age Limits	0.19%
Last Ratchet at Age 75	0.13%
Reverts to ROP at Age 75	0.12%
Limit Issue to Age 75 (Revert to ROP at 75)	0.09%

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Chart 3

Death Benefit Risks by Premium Cap

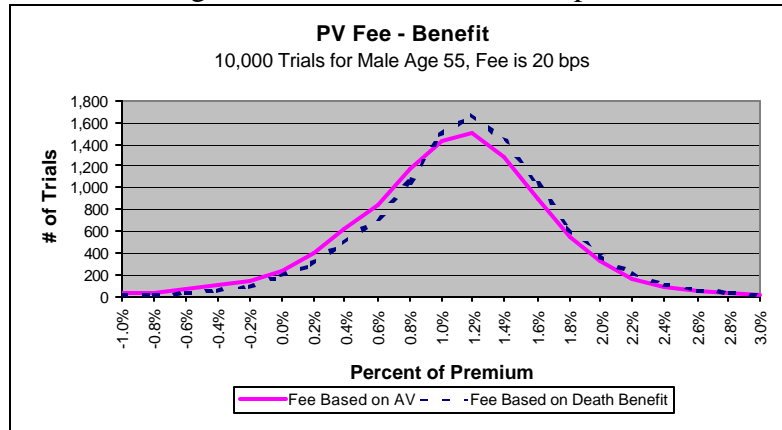


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Chart 4

Death Benefit Return/Volatility Align Fee Revenue with Risk Exposure



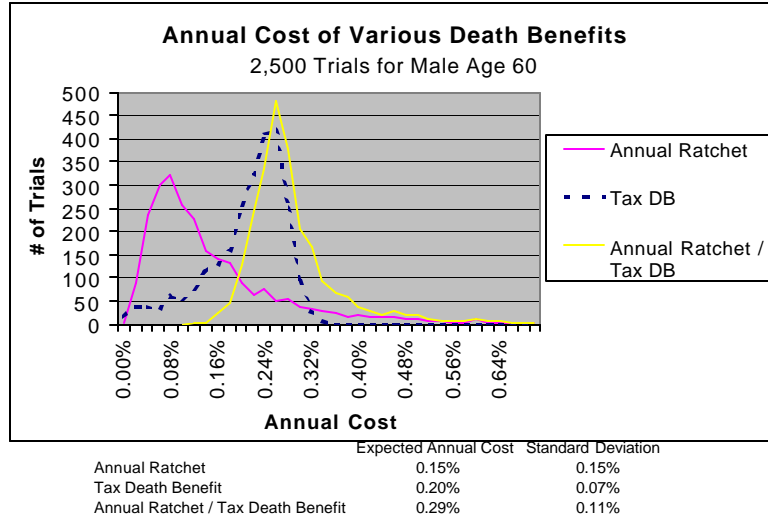
	Mean	Std. Dev
Fee Based on AV	0.95%	0.62%
Fee Based on DB	1.05%	0.57%

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Chart 5

Death Benefit Return/Volatility Combined Benefits

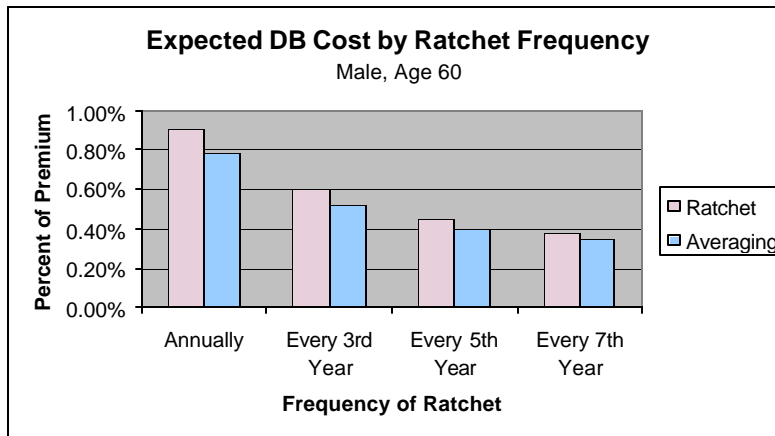


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Chart 6

Death Benefit Return/Volatility Ratchet versus Reset



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Chart 7

Death Benefit Return/Volatility Averaging for Ratcheted Benefits

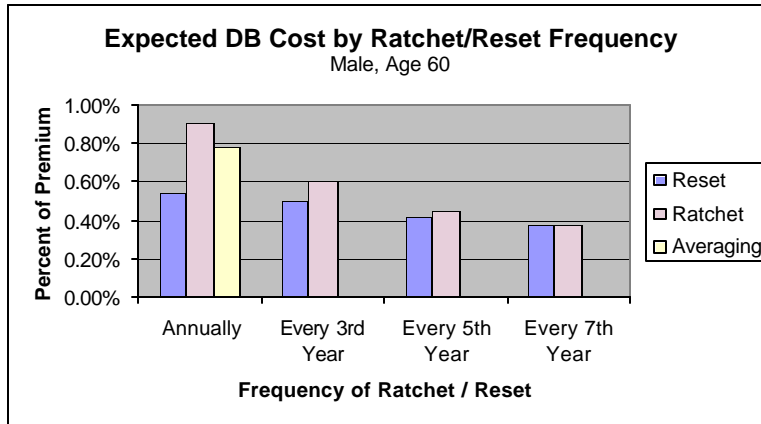


Chart 8

Death Benefit Return/Volatility Tying Death Benefits to Portfolio Model Values

