

# 2005 Valuation Actuary Symposium\*

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## Session 40 TS GAAP for Universal Life

**Instructor:** Edward C. Jarrett

*Summary: This session works through a detailed example of GAAP for a universal life product. Prior to the meeting, the instructor provided product specifications and pricing assumptions for a hypothetical universal life product introduced in 2005. Using accounting and in-force information for 2005, participants develop the GAAP reserves and DAC as of year-end 2005 in advance of the session. At the session, the instructor presents his results and reviews the actuarial aspects, methods and considerations in their development.*

*At the conclusion, participants have an improved knowledge and understanding of the actuarial aspects of GAAP accounting techniques and considerations.*

**MR. EDWARD C. JARRETT:** Let me give you a quick overview of what we'll try to cover. Basically, this is a teaching session. I'll present it as a case study in the sense that I'm a company actuary, a valuation actuary, and a new product has been introduced. Sales of that product during this year have been substantial. The product has some new features, and though they've been in other of our products, they're more aggressive and more material in this particular product. There are several other aspects of the product that have come into play. I'll talk about that situation. I'll talk about the scope of the projects. My project team essentially has to implement the GAAP and finance reporting process, given the information we have at our disposal, which is always imperfect.

I'll go over all the assumptions underlying the history and development, the projection assumptions and some product details. I'll talk about the imperfections of the data—the risks and uncertainty of that data and so forth. Then we'll look at

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the actual numbers—both the historic numbers and the projected numbers—and talk about them. I view that as probably the toughest part of our work. The actuarial formula is to do the GAAP. Yes, we need to understand those, but it's getting and verifying the data going into those formulas that takes 90 percent of the work. Finally, we'll talk about the GAAPing of those data to come up with deferred acquisition cost (DAC), unearned revenue, the Standard of Practice (SOP) reserve and the amortization of reinsurance costs. Again, it's also intended to reinforce the fact that the GAAP formulas are important. That's true, but the data underlying those GAAP formulas are where you'll be challenged the most and where you'll find the most errors. It's incumbent on us to interrogate those data, both the historic data and the projection data, and try to ferret out as many errors and problems as we can initially before applying the actuarial mechanics.

Let's talk a little bit about this particular case study. As I said, I am the valuation actuary. I have my staff that is doing normal finance reporting. I have a monthly financial reporting cycle. The staff members use seven working days at the beginning of every month to get their financial reporting done. We have another five days sometimes, depending on what happens before things are released—we're explaining our numbers, or our numbers are being challenged—so we have two weeks during which my staff is fully utilized and targeted. I won't have a lot of time with that staff on this new product that came out and dealing with its GAAP issues. I have two weeks, which is my normal schedule, to do other nonreporting activities, including implementing the GAAP on this new product.

In a normal situation those two weeks are already filled with other projects, so I've had to rearrange projects. This is the management aspect. I've had to figure out how much time I have available with my staff to get this done. Really, I have one week per month to get this product implemented on a GAAP basis. That's all the free time I have. I have been given the help of one of the pricing actuaries, the individual who developed the product and made the runs. That was valuable to me because he was able to analyze some of my projection results to see whether they were consistent with the pricing. I was also given access to a consultant to overview some of the numbers. He was helpful in terms of looking at the forest. We're working down in the trees, trying to be sure our account value works right, both on an historic basis and a projection basis, and he was able to overlook.

I was given some extra resources beyond my existing staff, but not a lot. Over the course of a period of months, it was work on the project for a week, lay the project aside for almost three weeks and then come back to the project for a week. That's not too atypical of a lot of company situations. Your situation may be that same way. You have a limited number of resources. You won't be given unlimited dollars to do this project. It's just part of your job. You must get it done some way.

You are my peer review committee. You're a group of individuals from throughout the company. It is my internal peer review committee, and it's staffed by actuaries from my line of business, which is the ordinary line of business. These actuaries

come from pricing, valuation and research. I have some corporate actuaries here. I have some accounting people, both from the accounting area and the corporate finance area. My Sarbanes-Oxley (SOX) officer is in this meeting to challenge me. I have representatives from the information technology (IT) area and the admin area dealing with the mechanics of the product, and I have some other corporate people. That's you. You're the critics.

My staff and I have done a lot of work on this. We don't have all the answers. We've done as much work as we could in the time we had, and part of your job is to challenge me and challenge the work I've done. Are there holes in what I've done? There will be. Your job is not only to understand what I've done, but also to see whether I've missed something. What do you think about this? Was that a situation? If I haven't covered that situation, I need to make a note about it as a follow-up item. This is a process that our company goes through. Before we present the numbers and the accounting methods to our auditors, we go through this internal period, so that's your job.

We did a couple of simplifications for the SOA session. For example, in a real-life situation, if the product was introduced in 2004, we probably would have this meeting in 2004, as the business is getting on the books, before year-end. Generally, we wouldn't have this meeting after year-end when the numbers are reported. But because of this spreadsheet, I needed to do that simplification. In real life, you're dealing with even less complete data than we have today, so in some sense that is a big simplification. I'll start off with the project scope. That's just a general overview of the scope of the projects and a simple overview of some of the accounting guidance that I have to live within, as well as some of the company practices that I have to live within.

This universal life (UL) product was introduced in 2004. Sales started in the early part of 2004. It was pretty aggressive, more aggressive than we've done in the past. It was a UL product with a shadow account. If the prospects met the shadow account requirement, they could have a no-lapse guarantee to age 100. It had a front-end load. Because of the competitive reinsurance costs out in the marketplace, we got a reinsurance quote that is lower than our pricing mortality assumptions, and that's an issue we have to deal with. That's just a quick overview of the product, and we'll go into a lot more details a little bit later.

What's my objective? My objective covers three different areas. First of all, I have to apply Financial Accounting Standard (FAS) 97 to develop a DAC. There is an unearned revenue reserve. That's a reserve with a front-end load to the product. I have to develop those to be reported for year-end 2004. I have to apply FAS 113 to the reinsurance ceded. I'll come back to what we've done in the past on FAS 113 and what we think we need to consider this time on this new product on FAS 113. I have to apply the SOP 03-1 to develop the reserve for the no-lapse guarantee feature.

Within my company, I must be constrained somewhat by what we've done with other UL products within our line of business. Our standard practice is a 30-year amortization schedule for DAC and the unearned revenue. Our unique schedule definition is defined by product and year of issue. By product, I don't mean plan code. It's really a product group. So in this particular plan code, we may have 12 to 15 different plan codes coming into this product group, this DS40. There are some variations on those particular plan codes because of underwriting issues and various issues. But it is by an entire product, and that's consistent with what we've done on other things.

We have set up SOP reserves on our other UL products with no-lapse guarantee features. They haven't been all that material, quite frankly. They've been there, and we've set up a reserve, but in terms of the materiality or the magnitude of the reserves, it hasn't gotten the same degree of review as maybe this product will because of the magnitude of the reserve. We have to implement a lot more care on this particular product. We need to make sure that the i's are dotted and the t's are crossed. On the other UL products, even if the reserve calculation was wrong, the fund value would still have been sufficient to carry the liability. On this product, that's not the case. We have a situation where, on a projection basis, our entire account value is projected to go to zero, so the entire liability at some point in the future, given our projection assumptions, will be based on the SOP reserve only. That becomes a lot bigger issue.

On our previous UL product, we looked at the incidence and the materiality of the excess benefits going into the reserve to see how long we should do the reserve out. We did extend the SOP reserve on other UL products beyond the DAC amortization schedule period, so that is not something new in this particular product. On previous products, reinsurance has been somewhat immaterial. We have used simplified techniques to handle the reinsurance ceded because it hasn't been a dominant portion on the reinsurance.

On this product, we're seeing 90 percent of the mortality risk because of the competitive nature of the reinsurance quotes out there. That was a decision made by someone else, for example. That's already been done as part of the pricing process. Some of that competitive reinsurance has been transferred to the policyholder, meaning that we were willing to drop the cost of insurance (COI) charges because of the reinsurance we were able to get. It's not like we're giving it to the bottom line; it's hitting our earnings. A large proportion of that is being passed directly on to the consumer.

What data are we looking at? We have two pieces of data or concepts of data that we have to deal with on the DAC amortization and on all the GAAP processes. We have the historic data and the projected data. Most of the actuaries in the room are pretty familiar with running profit tests and financial projections on an in-force book of business. Even though it's not always perfect, we're comfortable with doing that. Gleaning all the actual historic results can be problematic and difficult. We can find

a lot of problems with the data. Even though we can say in our little spreadsheet, the problem is with sources of data—accounting, the administrative people, the general ledger or whatever, and kind of pawn it off on them—it's incumbent on us to be sure that in our review of those historic data that we don't find something. We're another level of analyzing all those historic data coming through.

The pieces of the data that we need for the history and the projections include acquisition costs, obviously, and fund value roll-forward—a key item—and all the components of that fund value roll-forward. Also, we need expenses, commissions and the commission acquisition costs. We need benefit and reinsurance costs. We must get the investment income on a projected and historic basis. Finally, we need to glean out what I call the benefits associated with a no-lapse guarantee. This is also subject to a little bit of judgment. What benefits will we reserve for on the SOP reserve? I need to figure out what those are, and I also need to also figure out how I'll get to those data.

I'll offer a quick overview of three accounting guidance areas. I tried to narrow it down to one slide per accounting statement. We could probably have 10 or 15 slides on each one of these, but I narrowed it down to one. Basically that's because in our company, we've been doing GAAP on intersensory products since the late 1980s, so we've been doing it a long time.

As for fund values to liability on an unearned revenue reserve, if you have any unearned charges, such as an unearned COI charge or something like that, that will be set up. Within our company, the unearned COI charge is set up outside of actuarial. If there's a loss recognition situation, we have to set up that. We don't have any situations like that.

DAC and unearned revenue or front-end loads are amortized over the gross profits. We've been doing that for 15 years or so. Premiums are not revenue, which means the income statement has a different frame and view than a statutory presentation, where premiums are revenue. We've been doing that for many years. So my staff and management and the accounting people are pretty comfortable now with what a GAAP income statement looks like, so margin, CY deductions, et cetera. The amortization of the DAC is unlocked with actual experience, and that's probably one of the key items of FAS 97 that caused us the most headaches in terms of getting our actuarial work done.

Let's look at FAS 113 guidance for reinsurance. I narrowed it down to basically three bullets that summarize the challenge that I have on this particular product. The accounting needs to be separate from GAAP—separate from the direct—which is not something we had done previously. We had done a combination of doing the amortization net of reinsurance but looking at it on a direct basis and hand waving our way around the reinsurance cost as being a nominal amount. It wasn't material to our line of business, and it certainly wasn't material to our corporate entity as a

whole. Even though our accounting of it was imperfect, it wasn't material, so it didn't get a lot of scrutiny.

The methods and assumptions for the amortization of the reinsurance costs need to be consistent with the assumptions underlying the direct accounting. The reinsurance costs are amortized over the life of the direct contracts. Those are the three key concepts that I need to reconsider in more detail on this product, because I have a 90 percent quarter-share reinsurance agreement. Most of my mortality risk is going out the door. I have a different pattern of reinsurance YRT rates than I have on the COI rates on my product, and I have a different pattern between the mortality assumption that I'm using and the YRT rates on the reinsurance.

Finally, let's look at the SOP 03-1 guidance. No-lapse guarantee features are mentioned in the SOP. Even though the original intention of some of the reserve aspects of the SOP was not targeted to UL contracts, it certainly does hit UL contracts. That's obvious. We've been using it for other UL products.

The reserve is funded as a level percent of total assessments. Those assessments include COI deductions, charges and the interest margin. Then the final tricky one is that it needs to reflect any front-end loads or unearned revenue as recognized. I'll get back to that in some of our GAAP calculations that show that gets to an iteration or a circular calculation aspect. The reserve assumptions are consistent with the DAC amortization assumptions. That's pretty easy for me because I don't have to run a lot of different types of assumptions. I can use the same projections for DAC that I'm using for the SOP reserve calculations. The reserve needs to be unlocked based on actual experience. Again, I've already set up that unlocking process on my DAC and unearned revenue reserve normally. I just have to be sure I can get at the data I need to do that unlocking. The key item there is to grab the excess benefits associated with the no-lapse guarantee feature. The estimated gross profit (EGP) used for DAC amortization needs to be adjusted for the SOP reserve that I'll calculate.

I'll flip over now to the spreadsheet that I sent everybody. I do apologize for not getting that to everyone a month ago, but unfortunately I had a lot of other projects to do as well, so I had to get some of that done. You should have the spreadsheet with all your actuarial formulas and things of that sort. Here's a little bit of background on the spreadsheet. I did import a lot of data from outside the spreadsheet itself with links, and that's in this input tab. I did range-value all those data once I sent it to you, just so the links would be there. I think I missed a link or two.

What I'll go over right now is that first sheet on your handouts and the first sheet on the Excel spreadsheet, which goes over some of the projection assumptions and some of the risks and uncertainties. Then we'll look at the numbers and talk about every line item that we can. You are there to challenge me and challenge my work, to see if I missed anything. You have had various experience in your business that I

don't have, so there could be some issues that I've forgotten. I'm sure there are. Part of this review committee process is for you to help me identify areas that I've missed or have not considered.

As we've talked about already, it's a UL product. It's front-end-loaded with a no-lapse guarantee feature, 200 subject to shadow account guarantees or shadow account requirements. We'll get into the details of the history a little bit later, but we did unlock to actual historic results for 2004. I say "actual" loosely because we know that the actual data are hard to get your hands on in many cases, and there are issues in terms of the quality of those historic data that we'll talk about. That's another area in which you may have some experience with problems or potential problems in gleaning out the actual historic results.

On a projection basis, we use the actual in-force at year-end 2004. We have projected it out to the last policy terminated. We didn't expect a lot of policies under age 20. In fact, we got a handful of them, so we do have some issue age zero policies, believe it or not.

The actuarial assumptions used in the projections were consistent with the pricing assumptions because we didn't have any knowledge to use anything different from that. I think I would be in hot water if I used anything significantly different from pricing and other financial projections. Our company's practice is generally to keep our actuarial assumptions consistent among pricing, financial projections, cash-flow testing and corporate plan, so we're always sending assumptions back and forth. We have the corporate level assumptions and various modifications of those assumptions, and we have to defend any modifications from the general standard of the assumptions across the various processes.

One of the differences between pricing is that we have the policy dump for every policy—what they paid in at issue. A few policies were issued in the early part of the year, but most of them came in the second half of the year. We know what they dumped in. We had a lot more dump-in than we thought we'd get in pricing, even though we did price some of those features where someone dumped in a lot of money and dropped in a lower amount after that. We set the renewal premium assumptions in our projections to try to be consistent with that dump-in. We couldn't be exactly the same as a dump-in because on our projection functionality, we did not code up the actual shadow account mechanics in the projections. We have a disconnect there. We did use a pricing actuary to help us validate the renewal premium assumptions, and we did do a big sample of actual policies to figure out the dump-in and what renewal premium would be paid. We did a lot of work trying to validate the renewal premium assumption by sub-cell within our model. We do know that is an area of uncertainty. You can block quite a few policies in a particular cell, and half of those policies will run out of steam earlier or later than what your model assumes. There are some problems there.

Our target credited rate is 5 percent, with a 1 percent spread, so our long-term spread is 100 basis points. Our practice has always been to try to have our long-term GAAP projections be consistent with our targets. Our crediting interest-rate committee always is committed to bring our spreads back to target as well as possible, and it's been good at that. I'm comfortable projecting out the 100 basis points long-term.

I'll offer just a little bit on the loads of the product. There are a 6 percent premium load, a \$6.25 monthly fee and a front-end load at \$10.00 a unit over the first five years. One of the practices, and we'll see this in the numbers later, is our 6 percent premium load does apply also to the dump-in, so we do get those dollars. As a practice, we have not deferred any of that 6 percent on the dump-in, so you'll see some loads coming in that hit the EGP. That's pretty heavy in that first year because that 6 percent does come in on the dump-in premium, so it does hit our EGP as opposed to hitting our unearned revenue. That's a practice that is consistent with our other UL products, so I'm not doing anything new on this product.

The COI schedule is not too dissimilar to other products. Select and ultimate varies by class, gender and band. There are some variances in terms of this incidence of these COI schedules that are a little bit different from others, but in terms of its complexity and its variability, it's pretty consistent.

We're using administrative expenses on a projection basis, and these are more consistent with our GAAP projections—100 percent per policy per year going out and 2 percent premium tax, and we do have some termination expenses in there for death claims and lapses and so forth. We do not include inflation in our maintenance expenses. We have not done that on any of our other UL projections either, so that's consistent.

Lapse rate is one of the critical assumptions in this product. Our long-term lapse rate is much lower than our long-term lapse rate of our other UL products. We are anticipating a larger percentage of business hanging around. I have one quick note to add on the premium assumptions. In terms of setting our renewal premium assumptions, we did take the stance that we have taken on other plans, and that is the policyholder will utilize the no-lapse guarantee feature if it's still available to them. Essentially that means we will not recognize the fact that someone falls out of qualification until they actually do. In this first policy year, no one is doing that yet. As the block matures, we know that some people will fall out of qualification. When that occurs, their projected numbers will reflect that, meaning they will not have an impact on the reserve, and they will go away. That's a practice that is consistent with our other products because we really don't know the utilization of the shadow account, what proportion of people will remain, keep in qualification, how far out. The worst-case situation would be that they do keep in qualification. That's what we really priced for, and that's what it sold for, even though we know a certain percentage will probably treat this as just a normal UL contract.



Mortality is a challenging assumption. As I mentioned before, our pricing mortality, our standard corporate mortality that we've been using, is higher than the YRT rates we got from the reinsurer. This was an assumption that I had to wrestle with in terms of what to use in the GAAP projections. The position I took is certainly subject to challenge, both internally by you and externally by the auditors. I don't have a "right" answer for you. I used a blended mortality based on the pricing and the reinsurance mortality. The basic argument I'm using in that situation is we have some mortality risk that is being sold off to a reinsurer. The reinsurer is willing to cover it at a rate less than I'm willing to cover it for, and therefore, we took that. We bought that reinsurance coverage, and we're passing a substantial portion of that back to the policyholder in terms of reduced COI charges. It's not like I'm getting the best deal on reinsurance, and it's hitting the bottom line. I've built this into the pricing of our products, and an inherent feature of the pricing of the product is the reinsurance. Without the reinsurance, the product probably would not be as you see it today. It would be totally different.

I did run several sensitivity tests on different mortality assumptions to satisfy myself that the DAC amortization and the gross profits would not be that different on a present value basis under different mortality assumptions, meaning the mortality risk is truly being transferred to the reinsurer. My present value of EGPs and my amortization rate will change somewhat on different mortality assumptions, but it won't go from 90 percent on the DAC to 150 percent. The change will be minor. I'm pleased about that. We did see that, and I'm comfortable with the way I handled the DAC amortization.

Another reason that I used the blended mortality assumptions is that it seems that there's a lot of uncertainty within the industry and with the accountants in terms of what I should do on my reinsurance cost amortization if I have a mortality assumption that's greater than my reinsurance YRT rates. I did not get any good guidance on that, just actuary-to-actuary comments about how they would travel it. No one that I know or was able to talk to had dealt with that situation and gone through an auditing process, so we haven't received a definitive answer on how to handle that. I didn't want to deal with it, so that was one of the reasons I did what I did. I talked to several of the actuaries within the company about this particular issue. We bantered it back and forth many times. What is the right thing to do? This is our current position, which is certainly subject to challenge.

**FROM THE FLOOR:** Ed, I have a quick question. You got the select and ultimate YRT rates from the reinsurer. Did you back into what you thought its projected mortality was? The reinsurers wouldn't typically give you their mortality assumption.

**MR. JARRETT:** That's correct. The reinsurer would not give us its mortality, which I didn't expect anyway. I did some quick analysis by taking 90 percent of the YRT rates, for example, assuming that if I'm on the other side, I'd say, "I need some profit there. I need some mortality." I looked at that. In my blending, I did not use

the 90 percent of the YRT rates to come up with my blended mortality assumption. I looked at the entire YRT rate, loaded from the reinsurer—whatever that load is, which I don't know—and came up with my mortality assumption, essentially so I would get a little bit of nonnegative reinsurance cost over the long term. I did not try to set the mortality assumption such that I would generate a 10 percent reinsurance cost as a percent of the reinsurance premiums. I did not go that low, but I wanted to eliminate on a present value basis the present value of reinsurance costs being negative. Again, I don't have the right answer. I haven't been able to find the right answer for this situation. But this is what I did on the numbers you'll see today. The reinsurance is, as we talked about, 90 percent quoted share, select and ultimate YRT rates, with a zero first-year YRT rate.

Moving along, we have basic information on the GAAPing. The GAAP discount rate is set at issue consistent with our practice for other UL contracts—5 percent going out forever, which is the same as the credited rate in our projections. The portfolio rate is 6 percent going out forever in these particular projections. Our rounding is not a factor here. Our materiality is at about \$1 million, which means that for our line of business, if my reserve is off by \$1 million, people are upset with me. If it's anything below \$1 million, they're not happy, but it's not that big a deal. I'll try to get my numbers to plus or minus \$1 million that I'm comfortable with, given all the assumptions. Granted if some of these things are off, that will drive things tremendously. That's what I'm shooting for.

**MR. MICHAEL E. DERR:** You're using a level scenario essentially. I know in cash-flow testing, the level scenario is one of the best scenarios you can get. Could you put in some assumption to reflect the cost of that?

**MR. JARRETT:** In our previous projections of UL products, we have taken a level assumption type of path. Our target credited rate tends to be a little bit higher. When they priced this, they targeted at 125 basis points, so I'm projecting a little lower spread for my GAAP projections. We've done that pretty consistently. We try to be a little bit more conservative, not in the terms of margins for adverse deviation, but conservatism in the sense of accounting conservatism. If you have two likely events, you'll take the assumptions that generate the more conservative balance sheet and income statement. That's the aspect of conservatism I try to put in my GAAP projections, and that's one area in which we did.

They do try to target a little higher than 100 basis points for our GAAP projections. We try to drop the spread just a little bit for our GAAP projections. For that reason, we're not running multiple scenarios. I did run quite a few scenarios to see if the SOP reserve would be sensitive to different market assumptions—really, interest-rate assumptions—and it was not that sensitive. If we hit the lower guarantee of 3 percent, that will cause problems, but I did not embed any of that in these particular assumptions. I didn't run multiple scenarios and weight those scenarios for this SOP type of work. That's also consistent with what we did on the other UL products in setting up the reserve originally. We did run quite a few what we would

call adverse assumptions or scenarios to see how bad it would get. We felt comfortable that we could use the DAC assumptions in our SOP reserve calculations. That is not true on the other line of business, the variable annuity line, which is handled by other actuaries.

**MR. ANDREW D. RALLIS:** I'll play along and play peer review with you on a few of these assumptions. The first one is that you seem to have done a static projection. I come from a variable annuity world, so in the projections, we're used to looking at a range of scenarios. They're typically economic scenarios, but we've dabbled in UL as well. With scenario testing, I agree that we don't find that great a variation based on interest scenarios, but we do find a wide range of outcomes based on premium scenarios. You seem to have used the single static premium assumption, and I would expect that the average of a range of assumptions on premium might not be the same as this static assumption.

**MR. JARRETT:** I would agree with you. This is probably another area in which we have attempted to be conservative. On this particular product, we attempted to set up the renewal premiums so that they would satisfy the shadow account requirements, which in our view is the most costly from a company standpoint if they actually satisfy it. If they fall out of qualification from the shadow account, they'll run out of steam quickly, or if they pay a lot more money than needed, in both those situations, the company makes more money than if they meet the shadow requirements.

**MR. RALLIS:** I'm not sure I support conservatism as a principle of GAAP accounting. This is not statutory. We're looking for release from risk type in the GAAP financials, so I'm not sure that conservatism has a place here.

**MR. JARRETT:** In my view it was a situation in which the uncertainty of anticipating policyholders falling out of qualification was not something I wanted to build in my initial DAC amortization. For example, if I wanted to see if I feel the DAC is recoverable, I wanted to say it was priced this way, it was priced to meet the shadow account requirements. We did run tests in terms of higher premium and lower premium. In those situations the company made more money, but I wasn't comfortable. I had wide agreement that we would recognize someone falling out of qualification when it actually occurs.

In these projections we do have a few situations in which a policyholder has paid in more money, even initially, than needed to fund the shadow account all the way out. Even in this situation, we will have policies that are overfunded, and those will go beyond on out. In the future as policies become overfunded, they will also be projected within the curves. Also, in the adverse situation when someone falls out of qualification and is not capable of repaying premiums to build the shadow account back up, we will reflect that coming in the in force automatically. I hope that answers your question. There's not a right answer.

**MR. RALLIS:** There's not a right answer. I'll let that go.

**MR. JARRETT:** You may prefer to be more aggressive than what I've done.

**MR. RALLIS:** I have a couple of other ones, though. Let's look at your lapse rate schedule. You've noted that your ultimate lapse rates are very low, at 2 percent. In any event, are you also putting an assumption that if the actual account balance goes to zero, the lapse rates would go to zero?

**MR. JARRETT:** No, I am not.

**MR. RALLIS:** Why is that?

**MR. JARRETT:** Basically, we didn't have the capability of doing that within the projections—that the projection be sensitive to the then-current state of the account value. Without getting into the actuarial formulas directly, we didn't have the capability of doing that within the time frame of doing this projection. Yes, that would be an area that we would consider doing.

**MR. RALLIS:** I think you should do at least some sensitivity tests around setting that to zero before you finalize your reserves.

**MR. JARRETT:** Just so you know how we tried to handle that, if someone had paid up a pretty substantial dump-in, we did assume the renewal premium was sufficient to meet the shadow account requirements. And we did take some subcohorts and do a limited pay type of situation on those subcohorts.

**MR. RALLIS:** Do you know if that experience bears that out?

**MR. JARRETT:** No, we don't have any renewal premiums yet. We have only first-year premiums. We don't know what the renewal premium will be. We have our first-year premium. We have information regarding what they had planned to pay. Other than people paying monthly or quarterly premiums, we don't have any idea of what will come in. That will come in during our second policy year. We'll start to get those particular data. When those data become available, we will try to reflect them in our projections.

I tend to be a little bit more conservative on this particular block of business. I am concerned about the volume of the business. If I change my projection assumptions too drastically 12 months from now and the DAC changes drastically, I need to be comfortable that I haven't been overly aggressive. If I have a ding on equity of \$10 million, I'll probably lose my job. If I have an increase in equity of \$10 million, you're not happy, but I keep my job. That's the way it is.

**MR. RALLIS:** I have one more assumption that I want to challenge you on. You set the amortization period to 30 years and cited precedence with the previous UL

policies that might not have had these no-lapse guarantee features. With the low lapse rates, these policies may persist with little account value well beyond 30 years. In certain scenarios losses could emerge well beyond 30 years. You did projections out to 101 years, so I'm not sure why you would not have used a period longer than 30 years.

**MR. JARRETT:** We had a situation where there were substantial EGP margins beyond 30 years because of our low lapse rate—much more substantial—anticipated today. Again, we don't know what the renewal premium assumption will be, what people actually will pay. What proportion of the business will utilize this product as it was designed to be utilized? That's a huge unknown. We won't know until next year, when we'll get a little bit of those data.

Based on our projection assumptions, we do have a lot larger percentage of gross profits beyond 30 years. We had a trade-off, and I've talked to several people about the issue, whether we wanted to extend the amortization period beyond 30 years for this block of business. We did consider that and came to the conclusion that because I was able to amortize it over 30 years and got some sort of GAAP profits over the first 30 years with that amortization, we stuck to it. It was a trade-off. Certainly, we can consider going beyond 30 years. That's up to corporate actuarial and management whether they want to explain that going out beyond 30 years. I can go either way.

**MR. RALLIS:** That's probably up to your auditors. If you have substantial profits out beyond 30 years, you might very well argue that the 30-year period is not long enough, and GAAP calls for FAS 97 amortization over the life of the contract. In the past usually it's been materiality that says there's not a lot of profit out past 30 years, which is why 30 years was appropriate for some of the other blocks. But in this case, that might not be appropriate.

**MR. JARRETT:** That's true. We have set it up so we can amortize the DAC and unearned revenue reserve over a longer period if that's the final conclusion. The numbers you'll see are going over 30 years, but we have set it up. In fact, we developed, as you'll see in some future pages, the K/50 years and 100 years. That is an open issue, but it's not my place to make the final determination on that. I'll be presenting it to the management team after you people give me the OK, and we'll go from there.

Thank you for your questions. Those are valid issues, but we don't have perfect answers for them today.

We've talked a little bit about the amortization period for the DAC. In the calculations, we'll see it's over 30 years. We are prepared to go beyond 30 years if, as a company, we want to do that. Again, it's a trade-off of two particular aspects.

For the SOP reserve calculations, we did go out for the full life of the book of the business. Again, it's a situation in which we do not know the utilization of this contract, it's shadow account utilization. We want to be prepared so that, even if there's only a handful of policies out 50 or 75 years from now, the reserve will be sufficient. So, we did extend it out to 100 years.

DAC cost amortization is also subject to what the numbers look like. We do get reinsurance cost liability, and that is totally dependent not only on the incidence of those reinsurance costs from RT rates and so forth, but also on the mortality assumption. Again, we have information. We have a bunch of runs. The actual final decision will be a group decision by corporate and the line heads and everything else.

I'll go over conceptually a couple of the aspects for which we had imperfect data, and then we'll hopefully be able to talk some more about those when we look at the results. Regarding the history components, the fund value components, all those data are coming from various sources outside of actuarial. We're not generating that within the actuarial valuation process. We're getting it from the IT people, from the admin system. We do not get the front-end loads. We have to separate the total contract loads between front-end and nonfront-end, so that's something we do within actuarial. In all other UL products, we've been doing that on an approximate basis, looking at the factors and the product and then applying those factors to come up with what the unearned portion of the total loads is.

We are reflecting investment income, including realized capital gains and losses, in our historic investment income. We did allocate investment income by a rate concept, as opposed to total dollars. We took the overall historic rate of investment income on all the assets where the ordinary line of business is the subcohort of business of assets within this line. We use that rate then to allocate investment income dollars down to the schedule level. In this case, I think our investment income rate for 2004 was 6.08 percent or something like that, and that's the rate we use to allocate the investment income dollars to our particular schedule, which is consistent with every other UL schedule we have in our book.

The expenses—acquisition commissions and acquisition costs—come from accounting and the admin people, so we tie back to the accounting numbers. We do try to look at those expense costs in comparison with our expense allowables used in pricing and other financial projections, including these GAAP projections. But most of the time we don't, and we didn't in this case, actually change those numbers that we got from accounting. There is a zero first-year YRT rate, so there are no reinsurance premiums that first year. We could not get a good handle on reinsurance benefits, so I had to approximate those in 90 percent of the direct benefits, which is the best I could do.

On the projection side, for the no-lapse guarantee excess benefit, we had to talk to the IT and pricing people to see how the no-lapse guarantee in the shadow account

was handled in real life. One of the aspects we had to deal with was if an account value went negative, and someone paid a premium—and on a projection basis, we are assuming almost all policies are paying renewal premiums unless they're totally funded—then what happens? Does it fill in the negative and then go positive, or does the account base start at zero and then the premium is added to zero? It is the latter case. We've gotten that from both the pricing and admin people, meaning that when the account value is zero, it's zero. When someone pays a premium, it goes from zero to a positive number. If the account pay goes positive again, COI charges are then deducted, and we do earn those. That's how it will occur in the admin system, so that deals with the handling of the negative fund value or account value aspect of things.

We did try to reflect the riders. We looked at all our riders and figured out the approximate excess rider cost. We added that to the renewal premium. We tried to get a wash with the rider charges going into the fund value and some rider costs coming out. It was more of a situation where we tried to reflect riders. In a sense we did something. We didn't totally ignore them.

On the substandard side, we did not reflect the substandard ratings of policies. Our substandard business tends to be about 3 percent. It doesn't look like it's materially different on this product. We did look at the account value and the dump-in for that policy or cohort of policies in setting the renewal premium. We do think we are consistent in the mortality assumptions and so forth on a projected basis and that premiums are anticipated on those, but it's imperfect.

Our projected portfolio rate is not too far off from what we actually earned in 2004. Our credited rate in 2004 was lower than 5 percent; it was somewhere around 4.5 percent over the 12-month period. So we did have a little excess interest margin in 2004. We did not project that forward. We did not start with a credited rate at 4.5 percent and then grade that up to 5 percent in our projections, so that's another little level. That's also consistent with what we do on all our other UL products. We have a target spread. We do not grade from an actual spread today to a target over a period of years. We just have a long-term target, as long as we feel comfortable that we're not damaging in that long-term target spread.

My staff does a lot of ratios to figure out whether things look reasonable between the historic data and the projected data. We do ratios of commissions to premiums and average COI per unit in force—a myriad of those types of things. We do try to check the consistency between the history and the projections. It's a little hard on the first year of a book of business, but we also do this for all our other UL plans on a longer in force. We've caught a lot of things where it looked like our projections were inconsistent with our history, and we've had to make adjustments, but that's also implemented within this product.

In the spreadsheets, we did have to make some simplified assumptions for the SOA presentation to reflect annual cash flows. In reality, we reflect monthly cash flows,

so all the discounting and all the cash flows will reflect monthly results. That's just a simplification in the formulas to make life easier.

For the issues, I assume the issues were September 1 and some of the formulas you'll see in the actual spreadsheet.

Let's look at a few of the risks and uncertainties that we have on this product. No-lapse guarantee utilization is a tremendous uncertainty. We just don't know. We have taken what we view as a conservative approach. You can argue that it may not be conservative, depending on our long-term lapse rate. If our long-term lapse rate is 0.5 percent, and everyone is overly utilized, we may not be conservative. It's certainly a trade-off there. As for long-term lapse rates, we don't know if they'll be 2 percent, 5 percent or 0 percent, and we don't know how that will vary necessarily by people who are fully funded, people who have a zero account value, whether they're just going to keep it in force. We assume they are, but we don't know what that actually will be.

Antiselection is an issue we bantered around, especially when we dealt with the mortality assumption. Will there be significant antiselection for people who are fully funded? People who are still in qualification, if they're in bad health, will keep their policies in force a lot more than people who are in normal health and can go out and buy a different product.

The reinsurance is nonguaranteed. We have talked with corporate on that issue. Corporate and legal have been dealing with the reinsurers consistently, talking about these issues off and on at the line level and my staff level. Whether or not to implicitly show in our GAAP projections a reinsurer raising the YRT rates is beyond our purview. We have not done that on any of our other UL products. I've talked to other actuaries, and they're not doing that either, so essentially we're taking the position that it is unchanged—the reinsurer will keep its YRT rates, even though we know legally they can raise them. We don't know in what situations they actually will do that. In our experience, they have never raised the YRT rates or the reinsurance quote on us on any other product over the last 50 years or so. That is a risk, but with the position we're taking, I feel comfortable that I'm consistent with what other companies are doing.

We've talked a little bit about the mortality assumption, so I won't hit that again. That is a long-term unknown. Will we be closer to the reinsurance mortality assumption? We have not in our normal corporate and pricing mortality assumption included improvement of mortality in our projected mortality assumptions. We assume, but don't know for a fact, that the reinsurer is doing some of that. We don't really know. We did look at some of that in setting the mortality assumption. In our actual blended mortality assumption, we assumed that it would grade down and have some mortality improvement. That's how we got to mortality assumption on a long-term basis that had a somewhat positive reinsurance cost.



Simulation of the shadow account is something with which we had to work closely with the pricing actuary, but that is a risk. The simulation of the shadow account in the projection system may be a little bit off, one way or another. We've run many individual policy audits to look at the account value compared to the illustration on that policy, as well as what the pricing actuary did. So we feel pretty comfortable on a sample basis, but we know that it is imperfect.

Projection coding errors certainly could come in. Again, we had the individual who coded the business do the coding. We had another actuary or para-actuary review the coding of that business within the system, so we had a two-phase situation there. There may be spreadsheet errors. There would be some errors in formulas that you'll see. Those are the various risks we've identified. There could be more.

I'll start looking at the numbers. We've talked about a lot of the data that go into this effort. Normally 90 percent of the time the errors you'll find will involve those data—are those good data or bad data—and less so on your GAAP formulas. In your handouts, although it may be a little bit difficult to see, I tried to identify data input into the spreadsheet versus formulas within the spreadsheet. For example, the gross premiums are an input item to the spreadsheet. In the spreadsheet that I circulated, I have range valued those dollars, those values, so that there aren't a bunch of links. There is some random link in there I couldn't get out, but I did try to range-value all the input items.

The spreadsheet is in thousands. In terms of actual presentation, I look at numbers on an ongoing basis. I'll consider numbers in the hundreds of thousands in terms of materiality. When it gets down below that, I tend to ignore it. The staff generally will look at every particular amortization schedule every finance-reporting day to look at the change in K, at the update in history, to see if there are any material changes. If the K changes by more than 0.1 percent, we have to look at it to see why it changed on a material line of business or material DSE cohort.

What we'll do is go over the history and the projections simultaneously. We'll look at the history item as well as the projected item to talk about quality of the history item and of the projected item, as well as how they trend. We want to make sure there's nothing that jumps out at us.

Regarding fund value roll-forward, from a history standpoint, we're getting all those fund value components from the accounting, IT and admin people. Premiums and charges other than credited interest are coming from the general ledger, so those are pretty well tied. We have to do a little work on the credited interest to back into that on many cases. We are bringing all of those data in on a seriatim basis. We are approximating at the contract level the credited interest on that policy. That's one of the items that we have to calculate because we can't get it directly from the admin people. We are able to get fund value released on termination and death and things like that from the accounting people, so that's pretty good.

On a trend basis, we do look at various ratios of premiums per unit, premiums per policy and things like that, as well as the charges, those types of things, both on a history basis and a projection basis to see if anything jumped out at us. We did do all those type of controls and the credited rate coming in during 2004 versus that on the projected basis to be sure we felt comfortable with those numbers.

The key item on the fund value roll-forward is on the fund value check. The actual account value, \$152 million, is the account value coming in on our valuation extract. Then we get all the fund value components from other sources, such as accounting sources and transactional sources. That comes into our history. So what we tied to is the account value coming in on the valuation extract. We are at \$500,000 different within that. That difference is 0.3 percent of the account value and 7.1 percent of the EGP value for this cohort in the first year.

Our company practice is to look at the fund value roll-forward for the entire line of business and then down at one level below that—not down to the schedule level necessarily. As long as the entire line of business falls within some criteria, the fund value difference from the roll-forward to the actual reported fund value was less than 10 basis points, which satisfied our criteria for our line of business. On this plan it's a little bit higher than that, so there could be something there. But overall, we felt that as a line of business we're fine. We kind of met those criteria.

We had to estimate front-end loads from our actuarial information, so we applied the units to the in force to figure out the actual front-end-loaded portion of the total expense dollars, the \$11.6 million. We had to pull out some portion of that for the front-end load for 2004. As an informational item, we were able to get at the charges that are waived for contracts that are in the money. We were able to get that out of the projection system, which gave us some good information in terms of the proportion of business that was in the money. That means the account value was zero, essentially, but they were kept in force because they satisfied the shadow account requirements. Again, on a history basis we get commissions and DAC from the accounting people. On a projection basis, it comes out of the system. Again, we did a bunch of ratios to see whether we're satisfied with those.

One of the other key items is the excess benefits. We do that calculation. We did get the total benefits from the accounting area, and we got the fund value released on death from our account value roll-forwards. The other item that we'll have to do some work on in the future is policies that die that are in the money, meaning they're in-force only because they satisfied the shadow account requirements. The account value is essentially zero, but they've satisfied the policy requirements. On a projection basis or a future history basis, we'll have to do a better job identifying those policies and bringing that into the history.

We only had a handful of deaths during 2004. We did not look at every one of those policies to see whether any of them were in the money. According to this, there could have been one or two policies that were in the money, but we don't know if

any of the actual deaths were in the money because we didn't look at the deaths. So, there could be a little bit of number there in the history, but in these calculations, we assume that none of those deaths was in the money. If they were, that would have an effect of reducing the reserve. On a projection basis we did a ratio of the excess death benefits for policies that are in the money versus total excess death benefit. So, if you look at the projection basis, that ratio will go up to 100 percent over the long term.

That's pretty much our history or our data anyway. I'll get into the GAAPing of that information and some of the considerations that came into play there.

We were able to calculate EGP from the input data. In every case, what I tried to do was give you the formula based on the input data and how I came up with the value. We calculated EGP on a direct basis before reinsurance and before the SOP reserve, so this is a margin presentation. We also looked at an EGP projection or an EGP format that has revenue and expense to see if anything looked haywire. What you're seeing is just a margin presentation. We do have EGP double prime. That will be numbers before any SOP reserve. You can see on a long-term basis, the projected EGPs are negative, and beyond 30 years they get drastically negative. Again, this is certainly material evidence that we have profits followed by losses, and we certainly need a reserve. On some of our other UL products with a no-lapse guarantee, this number was still positive out there. But we did set up a reserve anyway because the product had the no-lapse guarantee feature in it.

I did range-value this in the spreadsheet because it was tied to some of the links, but we did try to tie the EGP calculation in the spreadsheet back to the EGP coming out of the projection module to be sure that in my spreadsheet calculations I didn't make any mistakes. I was able to validate that. At least my spreadsheet is consistent with our normal GAAP projections.

Our next section deals with the SOP reserve before unearned revenue. This is an area that different companies are doing in different ways. Because it seems to satisfy our problem in one iteration, I generated an EGP ignoring front-end loads, and I created an SOP reserve based on that EGP stream. With that EGP stream, I was able to come up with an unearned revenue reserve—a preliminary unearned revenue reserve—that then I would utilize in the next step, which is coming up with the final SOP reserve. It's a two-step process. There's an initial process to come up with an initial SOP reserve without front-end loads and then another to utilize that SOP reserve to come up with a preliminary EGP stream that I then can use to amortize the front-end loads.

I'll go through the cycle again and recalculate my final SOP reserve. Then I can calculate my final DAC and unearned revenue reserve amortization. If you go down to the bottom, you'll see formulas, of course. What I did put in there was what the benefit ratio would have been under a 30-year schedule if we amortized the reserve over 30 years, 50 years and 100 years. The benefit ratio would have been 12.63

percent if we just went over 30 years, 21 percent over 50 years and 23 percent over 100 years. We felt strongly that we needed to reserve this book of business over the full life of the block, so in these calculations we've used 100-year reserve period. We've gone out to the end of the book of business.

In this preliminary DAC amortization or unearned revenue reserve amortization, I did calculate what the amortization rate would be over 30 years, 50 years and 100 years. At 30 years with 19.8 percent, we do drop more than 200 basis points. It looks like in terms of a change in K, you could argue 50 years. I have not gone back to our other UL schedules to see what would be the drop in the DAC amortization rate and the unearned revenue amortization rate if I went out 50 years instead of just 30. I don't know whether this 250-basis-points drop would be consistent with my other UL schedules. I don't have that information at my disposal. But in this case it was a drop, which we do expect.

That gets me my preliminary reserve and my preliminary amortization of my unearned revenue reserve. I'll take that amortization of my unearned revenue and use that to come up with my new assessment stream that then I'll use to calculate my final SOP reserve. My assessment stream needs to include the recognition as recognized—the unearned revenue with those front-end loads being recognized—so that's the reason for the two-step process. This is where I get my assessment stream after unearned revenue, at least after preliminary recognition of unearned revenue. From that I'm able to calculate values.

You may have already figured this out, but I do have a column that shows the present values over the first 30 years, the present value at issue—meaning at January 1, 2004 from years 31 through 50 and then 51 through 100. One of the reasons I used the simplified middle-of-the-year basis for cash flows was that it made the formulas a lot easier. You can look at the formulas. If we did this monthly or quarterly, obviously the calculations would be more complex. In my final amortization or my final development of my benefit ratio, I do get a slight drop of the benefit ratio when I reflect the recognition of unearned revenue, which is what we expect, obviously. It didn't drop that much. On a 100-year schedule it dropped from 22.9 to 22.2, so it didn't drop all that much.

Once I have the SOP reserve, I'm able to come up with what I call the adjusted gross profits or final gross profit stream. I need to reflect the build-up of that reserve in my projected gross profit stream, which I have. That's the reserve increase. Then I'm able to reflect the investment income on that reserve. The investment income is not part of the actual SOP 03-1. In fact, in their example they ignore the excess interest or the interest on the reserve. We have taken the position that we need to include that in our adjusted EGPs. We do that on our other UL contracts as well. It's not inconsistent with what we're doing, but it does have a material impact. You did get some substantial interest on that reserve going out.

As a frame of reference, I did not take a ratio. You may want to do this at your leisure, but look at the projected reserve—\$66 million after 10 years and \$139 million after 20 years. In your handout you can probably compare that to what the account value was at the same time places. So, the reserve is becoming a substantial proportion of the total liability for the cohort of business—very material. As a result, over the life of the book of business, at some point a major portion of the investment income allocated to the book of business will come from the reserves and not so much the account value. My final EGP that I'll use for amortizing acquisition costs and the final unearned revenue reflects reserve increase and the interest on that reserve.

I'll go over to the next major piece of the GAAP mechanics, and that's calculation and amortization of the DAC and unearned revenue. Again, this is pretty straightforward. Because I need to report the roll-forward of both the DAC items—meaning the amount capitalized, the amount amortized, the DAC interest—I do include all those pieces in the DAC presentation. I need to report those items to the accounting people. On the reserve calculation, right now I'm not giving them a full reserve roll-forward. I'm giving them a reserve balance. But my acquisition cost K over 30 years is 92 percent, and this gets back to the question that was raised before: Should we extend it to 50 years or even 100 years? There will be a substantial decrease in K if we did that. Again, it would drop to 82 percent at a 50-year schedule and 81 percent at 100-year amortization schedule.

I have taken the position that I won't change company practice without management's OK and its wish to do that. It'll be in the position of explaining that to the analysts if the question comes up. I have all the data necessary to be able to do both under any period of schedule, but I did take the stance in the numbers I showed you that I kept with the current year or the current 30-year period. But there is certainly a cohort of business that I could argue going over a longer period. One of the things you may want to do when you do your analysis is to carry the numbers over to a GAAP income statement, show what the implied earnings would be and then test some schedules. That is something I still need to do to show the management team to see if it wants to consider extending the amortization schedule for this book of business.

Again, the unearned revenue is pretty much a drop as well. Unearned revenue is pretty small.

I'd like to deal with loss recognition and recoverability quickly. I do have a net K, even on a direct basis, of well under 100 percent. So even over 30 years—92 percent minus 20 percent—I'm safe on a recoverability basis. Again, I did test various mortality assumptions to see whether it's sensitive to the mortality. I'm comfortable that we're insulated there. We can argue, as we've talked about before, whether I've done an adequate job in terms of the lapse rates and utilization of the no-lapse guarantee feature.

Let's look at the last piece. Because we have the 90 percent quoted share, I needed to do a more sophisticated job in amortizing the reinsurance costs. We do have some guidance. TPA 6300 gives us some guidance on how to amortize it when we have a product that's utilizing the SOP. We have two options. We can amortize reinsurance costs over EGPs or the assessments. We made a decision to amortize over EGPs. The rationale there was that I wanted to have a basis of earnings consistent with my other UL contracts. That's why I chose EGP as opposed to the assessments because my expected earnings on a direct basis will be in proportion to slightly going up. I wanted to keep that pattern. I didn't want to all of a sudden change it to where net of reinsurance would be a function of the assessments. That's what I did.

You can look at the reinsurance cash flows, which is the net of the reinsurance premiums minus reinsurance benefits. You can see we have some negatives in those early years. They turned positive in some of the later years, so the incidence pattern of the YRT rates is certainly different than the incidence pattern of our mortality assumption, as well as our net amount of risk assumption—the combination of those two items.

I do get a significantly different reinsurance amortization rate for 30 year, 50 year or 100 year. For the 30 year, it's a negative 5.6 percent. We go out to 100 years, and it's 3 percent, 2.5 percent, so I did use the 100 year in this case.

I think I do have some argument that the reinsurance cost, given this mortality assumption, may not be all that material. So we do have a reserve starting out at \$2 million. It's not that big, so it's in this gray area of whether I need one. We are planning to set it up, unless we get overridden by corporate or management, just because it's there. But the decision whether to set up a special liability for the reinsurance will be a function of what our final mortality assumption is. The reinsurance costs are amortized over the direct profits and not profits net of reinsurance.

This gets complicated. When I had a negative reinsurance cost, I get a negative reinsurance reserve liability. What really is that? Because of the uncertainty of the correct accounting treatment—and I don't know where it will fall out on that—that's where we got the blended mortality.