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Draft SOP on Nontraditional Products: GMDB Reserve Requirements and Implications

Track: Investment

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Summary: This session covers the AICPA's proposed statement of position on accounting and reporting by insurance enterprises for certain nontraditional, long-duration contracts and for separate accounts. It requires new GAAP reserves for certain variable annuities with guaranteed minimum death benefits (GMDBs). The changes could impact the emergence and volatility of earnings on one of the industry's key products.

MR. DAVID C. SCHEINERMAN: First I want to discuss reset benefit. The way the reset benefit works is that, after a given period, maybe three years or five years or seven years, the minimum death benefit guarantee is reset to the current account balance.

For example, let's assume a three-year reset and, at the end of year three, the account balance is \$75,000. So, at the beginning of year four, the benefit is reset to \$75,000 as the guaranteed minimum and then adjusted from there for any partial withdrawals. That's why, at the end of year four, when there's a \$1,000 partial withdrawal, the guaranteed minimum is \$74,000.

Now, it's important to realize that this reset feature works in either direction. So, if at the end of year three the account balance had been \$40,000, the guaranteed

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

minimum would have reset to \$40,000, even though that's lower than the original premium. This wasn't necessarily perceived as the most valuable benefit, but I guess in the mid- and late-'90s, when the market was only going in one direction, people found this somewhat popular. But, in today's market, resetting down wouldn't be as popular.

This might be the pattern of benefits of incurred costs for a seven-year reset (Chart 1). You can see the inflection points at year seven and year 14.

Rollup Feature

The next benefit feature or kind of death benefit guarantee is called a rollup feature. On this one, the minimum death benefit increases each year from your initial premium. So, if you take the premium and increase it at a given interest rate — say, 3 percent or 5 percent up to given age—that becomes the guaranteed minimum. It's also adjusted for partial withdrawals.

For example, at the end of year one, an initial \$50,000 deposit is increased by 5 percent to \$52,500. Should the person die while holding the annuity at that point, he or she gets the greater of the current account balance or the rollup benefit.

Ratchet Benefit

The ratchet benefit is a variation on the reset that we talked about before. After a given number of years, the guaranteed minimum is adjusted, but this time it's only adjusted in one direction; it becomes the greater of the current death benefit or the current account balance. It also is adjusted for partial withdrawals since the last ratchet date.

In our previous example, I've done an annual reset or an annual ratchet; so, at the end of year one, the account balance is \$45,000. If it were reset, it would go down to \$45,000, but because it's ratcheted, it stays at \$50,000.

At the end of year two, the account balance is \$55,000, so it's reset higher at that \$55,000 number. But then there's a partial withdrawal during the course of year two; so, at the end of the year the guaranteed death benefit is \$54,000. The current account balance is \$75,000. The ratchet increases the death benefit to \$75,000 at the beginning of year four. There's a \$1,000 partial withdrawal during the year; so, at the end of the year the guaranteed death benefit is \$74,000.

The account balance is \$70,000; so, when this one-year ratchet period comes up, it's not adjusted. The balance is \$70,000. It stays at \$74,000. There's a partial withdrawal. The guaranteed death benefit at end of year five is \$73,000. And then if I were to continue the slide, at the beginning of year six, the guaranteed death benefit would get ratcheted up again to the current account balance of \$85,000.

A Different Type of Benefit

Then there's a different type of death benefit provision. It's maybe not fair to call it a minimum death benefit guarantee, but it is a death benefit feature on variable annuities. It's designed to provide some protection from the tax implications of the variable annuity, the gain that one achieves, upon death, of the account balance versus the person's basis or their premiums less deposits. That's typically taxable. What this death benefit does is somewhat offsets the cost of that tax by paying a percentage of the gain.

This enhanced earnings death benefit at the end of year one would be zero, because the account balance is below the initial premium. At the end of year two, we have an account balance of \$55,000 versus the original premium deposit of \$50,000. There's a \$5,000 gain. The writer provides a 40 percent benefit, and so there's a \$2,000 enhanced earnings death benefit. And it continues on to be 40 percent of the difference between the account balance column and the sum of premiums less withdrawals, except, in the last year in this example, it does hit a cap.

We've talked about different product features, but one way to think about these death benefits is that they are designed for protecting against certain risks. They could protect against risk of return: What kind of return is this variable annuity going to achieve over time? The rollup benefit provides that underlying protection.

Or it could protect you against volatility should you happen to die during a bear market cycle. The ratchet, the return of premium and the rollup all provide protection on that front.

Then it could protect against tax risks, if you will. The enhanced earnings death benefit kind of provides that protection.

The typical approach to providing this benefit is to include it either in the mortality and expense (M&E) fee for the annuity, which is the level basis points on account balance, or as an additional charge as a level percentage of the account balance. So the pattern of costs of these death benefit guarantees, typically, doesn't match the pattern of what's being charged for them. That's obviously a key factor in reserving.

Chart 2 shows the pattern of incurred benefits illustrative of the enhanced earnings benefit, and you can see how it can get capped out over time.

GAAP Guidance

What guidance does GAAP currently provide relative to variable annuities and relative to death benefits on variable annuities?

We look to Financial Accounting Standard (FAS) 97, which covers interest-sensitive products. Two main elements of FAS 97 are relevant here.

One is how you reserve for variable annuities. Is there a provision within FAS 97 to set up a reserve for this death benefit liability? The other is how you amortize acquisition costs, or deferred acquisition costs (DAC), and how this benefit might influence the amortization of DAC.

FAS 97 describes what the liability is for these products. It's primarily the account balance that the policyholder has. In addition, though, to the extent that there might be some charges in the early period to compensate the insurer for services to be provided later, FAS 97 wants more of a matching of those revenues and expenses; so it indicates that a liability should be set up for those front-end type of loads.

In addition, should there be some charges that might be refundable upon surrender, those should be a part of the liability, too. And there are some universal life products that were on the marketplace at the time that the FAS 97 was developed that provided a refund of cost of insurance charges, for example, upon surrender. This provides guidance that that should be part of the liability. It also has a provision that, should the policy on a gross premium valuation basis be deficient, one would need to hold the liability for that, as well, if it's a universal life type of contract.

So, there's really no specific provision that says that, if you have death benefit liabilities, you should set up a reserve for it. However, the hook here, as some companies have interpreted it, is Part B. If you're charging a fee in the early years that compensates you for services later, that perhaps provides some provision for this.

Currently, GAAP describes estimated gross profits (EGPs) as the basis for amortizing DAC. And the components of EGPs, as I suspect many of you are aware, are the charges. It's not the deposit that you receive, but it's the charges relative to that deposit. What are you charging for mortality versus what excess death benefit costs are you incurring? What are you charging for administration versus what are your direct costs for administration and sales that are not deferrable? What are your investment earnings versus your interest spreads and so forth?

Current GAAP doesn't speak directly to this. FAS 97 was developed prior to this product innovation and these nontraditional features. Because current GAAP doesn't speak to it, companies ended up taking different approaches, resulting in some diversity in practice in the industry. And, as this nontraditional task force came together, the issue of GMDBs was on the radar screen to provide guidance for more consistency.

The Draft Standard of Practice

So what does the draft Standard of Practice (SOP) say? As you might expect, the first step in GAAP is a classification one. You know you have to classify your product

to determine how to reserve for FAS 60, FAS 97 and FAS 120. So the first step in the SOP relative to this kind of liability is having to determine if it is an investment contract or universal life contract.

The key element here is the risks. Are the mortality and morbidity risks such that they make it an insurance contract, or is it really more of an investment contract? The wording asks, "Are these risks other than nominal?" That's quite a precise definition, isn't it? It's typical GAAP in that it doesn't pin it down and there's no bright line test; so, it will be somewhat of a judgment call on facts and circumstances, depending on your product.

It does tell you that you should determine the significance of the mortality and morbidity risks based on comparing the expected costs for these excess payments above the account balance relative to the fees of the overall contract.

It's not just relative to, perhaps, the charges of the writer. And it specifically talks about reasonably possible outcomes — a range of outcomes, rather than your best estimate. Often in FAS 97 we're looking at a deterministic, single-best estimate scenario. Here they recognize that these death benefits will vary in terms of value, and you should look at a kind of stochastic range to determine, "Is this a significant benefit or not?"

Let's assume that our policy does have significant mortality and morbidity costs. The next question is, "Are those costs proportional to the revenues you're charging?" If they're proportional, then you have it well matched in terms of revenues and expenses, and there's no need to set up a liability.

The next test is one of proportionality. Let's say we pass that. A typical benefit designed for minimum death benefit guarantees would have a nonproportional relationship.

And then it speaks to how you set up this additional liability. One can think of it as a kind of net premium reserve, if you will, or a revenue reserve, in which you're calculating a benefit ratio based on the present of these death excess payments, the cost of the death benefit versus the present value of the overall assessments of the policy. Again, it's the total assessments, not just the writer costs.

You establish this liability using, essentially, a retrospective reserve calculation. You take the assessment and multiply it by the benefit ratio to get to a net premium type level. You accumulate those net premiums, if you will, with interest, and subtract accumulated actual costs.

The SOP does direct that this liability should not be less than zero; and to the extent that you record this liability, it directs that it is an expense and that it is recorded as a benefit expense on the income statement.

You know this is a FAS 97 contract typically and, with FAS 97, you have this unlocking of estimates as you do your EGPs. The SOP also has you unlocking and regularly updating your estimates for the assumptions for calculating the benefit costs and the prospective revenues of the contract. And, as you unlock, you'll have an adjustment to the benefit expense, kind of like a catch-up or an unlocking expense that you would have for DAC.

You do this on each valuation date, each cyclical reporting, and use actual experience to date as well as prospective experience.

The SOP provides that you should include the expense or the release of the liability — the negative expense — in your EGPs as you amortize DAC.

When do we have to take this into account? Well, this SOP is still a draft. It's expected to get exposed in the next few weeks. There'll be a comment period. It's not a done deal that the terms I've just described will be codified, but I would bet that either it or something like it will get approved. And, as the SOP is currently drafted, they're recommending implementation for financial statements starting in 2004, allowing for early adoption.

When people do adopt it, they will look at that point in time as the significance of mortality. You don't go back to your original dates of the policies. You'll get the benefit of hindsight, if you will, as you're looking to implement this. And, as you implement it, any cumulative adjustments to your liabilities or your DAC would be booked as a change in the accounting principle.

Again, the key components for the SOP are as follows:

1. Classify your product and determine whether it's FAS 97.
2. Determine whether it's universal life or an investment contract.
3. Determine whether the insurance benefit is proportional to revenues or not. If it is nonproportional, the SOP provides guidance on liability determination.
4. Include that liability in your EGPs and your DAC amortization process.
5. Look for guidance in terms of the effective date.

The good news is it's not imminent, and it would be a change in accounting principles to the extent that there are immediate income effects.

MR. LOUIS J. LOMBARDI: Before I jump into my portion of the presentation, how many people set up a minimum death benefit reserve on a GAAP basis today? It looks like roughly about a third of you.

How many do not? Only a few. That's pretty much what I was suspecting. I think we've learned in the last three or four years that these benefits are starting to get somewhat costly, particularly the one-year ratchet and the rollup.

What I'm going to do is provide very precise numeric examples, and these examples are going to be in the back part of the SOP, the draft. So you should be able to leave here today and know exactly how to calculate this liability.

I'm going to first show you how the reserves are calculated and then walk you through a very precise example. The next thing I'll do is show you how the new reserves impact the amortization of DAC. There is going to be an impact on that part of your model. You first go through the calculation of setting up this minimum death benefit liability; but then you're going to have to go back and revise your gross margins to reflect that in your DAC amortization. We have to do a certain sequence of events here.

I'll leave with the impact this is going to have on earnings. And then Karen will pick it up and do some stochastic modeling to show you the volatility of this new FASB on earnings.

Benefit Ratios

The first thing that you'll need to do is calculate what is going to be called the "benefit ratio." That is the percentage of your total revenue you need to set aside as an accrual item for this liability. So, it's a slightly different concept than an amortization ratio for your DAC or an amortization ratio for your front-end loads. The algebra is similar, but not quite the same. There's a little bit of a twist, and I'll point that out as we go through.

Just like you would with your DAC amortization schedules, first you're going to calculate the present value of the expected death benefits in excess of the account balance, or excess death benefits (Table 3). You're going to use the actual experience that you have up to the valuation date and then the expected experience after the valuation date. And you're to do that present value using the same discount rate that you use to calculate the present value of your gross margins for the DAC amortization.

Table 1

How are the new reserves to be calculated ?
<p>To calculate the MGDB liability, the proportion of total revenue needed to provide for MGDB (Benefit Ratio) would be determined each reporting period as follows:</p> <ol style="list-style-type: none">1. Calculate the present value of death benefits in excess of the account balance (excess death benefits) as of the issue date of the contract using actual historical experience from the issue date to the current reporting period and estimated future experience, thereafter;2. Calculate the present value of total revenue as of the issue date of the contract using actual historical revenue from the issue date to the current reporting period and estimated future revenue, thereafter; and3. Divide (1) by (2) to determine the Benefit Ratio.

-2-

Now, because of the stochastic nature of this calculation, when you do that prospective portion of this calculation, you can't just use a deterministic assumption, because you most likely will get zero. So you are going to have to do some sort of volatility about expected values to capture the excess death benefits and then summarize that in some fashion.

Once you've done that, you're going to turn around and calculate the present value of total revenue. It is not gross profits. It's going to be the surrender charges, your M&E charges and any contract administrative expenses—you're stopping there without any outgoes. That's a difference.

Then, once you've calculated No. 1 and No. 2, the simple part is to divide one by two to get this benefit ratio. And being actuaries, you know a formula is worth a thousand words. All the words on Table 1 boil down into one equation: present value of the excess claims over the present value of the total revenue as of the issue date.

Now I'll start drawing down to the numerical example that is in the back of SOP (Table 2). Total revenue is going to be your expense charges and your contract administrative expenses, primarily. It also includes your M&E charges and any

investment management charges that you may be deducting from the separate accounts, plus any surrender charges that you collect on surrender. That’s going to be the total revenue.

Table 2

How are the new reserves to be calculated ? (continued)											
Year	Expense Charges	+	M&E Charges	+	Surrender Charges	=	Total Revenue	×	Discount Factor ¹	=	Present Value
1	30.00		820.50		17.50		868.00		0.92593		803.70
2	29.75		871.65		44.62		946.02		0.85734		811.06
3	29.48		919.29		61.42		1,010.20		0.79383		801.93
4	29.20		969.80		68.12		1,067.12		0.73503		784.37
5	28.89		1,034.77		64.99		1,128.65		0.68058		768.14
6	28.55		1,086.61		95.16		1,210.32		0.63017		762.71
7	28.18		1,143.53		58.71		1,230.42		0.58349		717.94
8	27.78		1,086.61		0.00		1,114.39		0.54027		602.07
9	27.34		1,268.91		0.00		1,296.25		0.50025		648.45
10	26.87		1,333.10		0.00		1,359.97		0.46319		629.93
11	26.35		1,382.93		0.00		1,409.28		0.42888		604.42
12	25.79		1,433.09		0.00		1,458.87		0.39711		579.34
13	25.18		1,487.10		0.00		1,512.27		0.36770		556.06
14	24.52		1,539.66		0.00		1,564.18		0.34046		532.54
15	23.81		1,597.88		0.00		1,621.69		0.31524		511.23
16	23.06		1,662.23		0.00		1,685.28		0.29189		491.92
17	22.25		1,691.70		0.00		1,713.95		0.27027		463.23
18	21.39		1,723.70		0.00		1,745.09		0.25025		436.71
19	20.48		1,751.22		0.00		1,771.70		0.23171		410.52
20	19.52		1,788.11		0.00		1,807.63		0.21455		387.82
Present Value = 12,304.07											

Discount Rate = 8.00%

Then you’re going to turn around and take the present value of those revenues. Take that total revenue column, multiply it by your discount factor column—which in this example uses 8 percent. It would be consistent with what you use for your DAC amortization schedules and your front-end loads. That gives your present value for that year.

Finally, you would just do a sum of all those present values, and that’s the denominator of your benefit ratio.

A similar kind of calculation is done for the excess death benefits, in which you’re going to apply your persistency factor, multiplied by your experience mortality rate, multiplied by your excess death benefit. Then you’re going to turn around and calculate the present value in a very similar fashion. For example, in Table 3 we get \$724.88. We then take that \$724.88 as our numerator and divide it by our total revenue to get our benefit reserve ratio.

Table 3

How are the new reserves to be calculated ? (continued)	
Present Value of Excess Death Benefits	724.88
Present Value of Total Revenue	÷ 12,304.07
Benefit Ratio	5.89%

-6-

This example was done for a 50-year-old male with a one-year ratchet, assuming 60 percent was in the Standard and Poor's (S&P) 500, 30 percent was in long-term bonds, and 10 percent was in money markets. The implied volatility on the S&P was about 22 percent, so you're getting a ratio here of cost for that 50-year-old of approximately eight basis points.

FROM THE FLOOR: Can you do this for everybody in total?

MR. LOMBARDI: You would want to use a methodology that's consistent with how you're doing your DAC schedule. So, if you use COHORT processing, where you group things by issue years and then do it at a macro level, that's fine here as well. Or, if you're doing things at a more refined level, I would just follow your practices in that area.

You're probably going to find that you need to come up with some simple ways of getting this embedded in your existing processes. That's something you just work out with the audit team.

The SOP talks about this liability in a retrospective manner. But we can show that, if you did it as a present value of expected benefits and administrative costs as of

the valuation date, minus the product of your benefit ratio times the present value of your total revenue, you'd end up with the same number.

You could do it retrospectively, rolling it forward, like you probably do with your DAC models. Your liability at the end of the reporting period is going to equal liability at the beginning, plus the interest on the liability. (And, for simplicity's sake, I assumed everything occurs at the end of the year in this example to make the algebra work straightforward.)

Table 4

How are the new reserves to be calculated ? (continued)	
MGDB Liability (E)	= MGDB Liability (B)
	± Adjustment to reflect revised estimates
	+ Interest on the MGDB Liability
	+ Portion of current period revenue used to provide for excess death benefits*
	- Excess death benefits paid
* Benefit ratio multiplied by total revenue for the period	

Then you're going to turn around and take the portion of your revenue for the period that you're setting aside in this liability and add that to this fund (i.e., it's the benefit ratio for the period multiplied by your total revenue for that period). Then you subtract from that any excess death benefits that you paid.

And just like with the amortization of acquisition costs, you're going to have an unlocking effect. So every period in which you turn around and revise your estimates and put in your historical experience, you're going back to issue, recalculating the benefit ratio, and then you're going to have a catch-up adjustment. That's going to give rise to some volatility.

Now, it's going to move in the opposite direction of how the DAC may affect it, so there could be some cross-canceling going on. But it's just another element of volatility in your profit and loss (P&L).

Table 4 shows a simple roll forward of the liability balance from the issue date to the end of year two. We start off with zero just before selling the contract. There's no interest to accrue on that, so we end up with zero interest.

Table 5

How are the new reserves to be calculated ? (continued)		
	<u>Year One</u>	<u>Year Two</u>
MGDB Liability (B)	0.00	51.14
± Adjustment to reflect revised estimates	0.00	0.00
+ Interest on MGDB Liability	0.00	4.09
+ Portion of Revenue used to accrue MGDB ¹	51.14	55.73
- Death Benefits Paid	0.00	12.20
= MGDB Liability (E)	51.14	98.76
<hr style="width: 20%; margin-left: 0;"/> 1. Portion of revenue = Benefit Ratio x Total Revenue = 0.0589 x 868.00 = 51.14		

We take our benefit ratio, which was at 5.89 percent, and the revenue for the period, which was \$868. Multiply the two together, and we get \$51.14. We add that to our liability. We had no death benefits in the first year, so we had no deductions, and there is no unlocking effect in this example. So we end up with \$51.14. That's carried forward to the beginning of the next period, and there we add the interest, add another portion of our revenue, set that aside, and then subtract any death benefits paid.

FROM THE FLOOR: Do you include a fixed spread in the revenue piece?

MR. LOMBARDI: Should you include a fixed spread in the revenue piece? It's the total revenue. You kind of look at it on your P&L, that whatever is up top for risk

charges — if you have an explicit risk charge for this — and the M&E charges and any investment management fees that you're taking out and surrender charges.

FROM THE FLOOR: I thought I heard you say that you had used past balances.

MR. LOMBARDI: Yes, you do. There are obviously many ways of doing this, but you do have to somehow incorporate some sort of stochastic model, in which you're doing some sort of variability about the mean of these death claims. And you may express them as, say, 16 basis points for a given cohort as a percentage of the account balance and then bring that into your model that way.

So maybe once a year, or however frequently you feel it's necessary, you do some sort of stochastic run that expresses it in a simple manner: For a 50-year-old, I expect eight basis points for my one-year ratchet, and for a 60-year-old, I expect 16 basis points for my one-year ratchet, using whatever best estimate assumptions you have at that time. Then bring it into the calculations that way. That's what I would recommend.

I would not rerun all your models every quarter, because some of these stochastic runs you have to do quite a bit, and it could bog you down and slow down the closing process.

FROM THE FLOOR: Does the SOP tend to provide guidance as to the choice of expected return and other assumptions?

MR. LOMBARDI: It's not going to be that precise. It's going to be very broad. I would recommend that you look at the literature and talk to your accountants, auditors and particularly the actuary on your audit team to see what they feel comfortable doing. There's a variety of practice out there, and you have to feel your way through. But there are some sort of rolling averages, a regression to the means concept that a lot of people are using.

FROM THE FLOOR: I have a few comments. I think that it's the excess death benefit column that you use the stochastic in this particular example, just because we worked together on it.

The second point is that I think that's a point of debate, David, because we've, as a firm, come back and forth on that for two reasons. We feel that Louis's solution for using the revenues that are consistent with your DAC model is one possible solution. Another possible solution is to have this consistent for this particular liability. And I don't think the SOP is clear on that point, so that is a point of debate.

One more point is that the SOP doesn't use the word "stochastic" on purpose. It uses "under reasonably possible scenarios." That, perhaps, means they don't have

to go to the level of stochastic, but use a reasonable alternative that's not just a strict set of steps in there. But we are debating on that point, too.

MR. LOMBARDI: If you listen to Laura, what you're seeing going on is there should be a balance between practicality and theory. And it's where you want to come out on that spectrum.

There's quite a bit of latitude because, I think, we're finding more and more rules are added on top of us everyday. You know, FAS 133 is a killer in that world, and so broad guidance is what you're going to have. If you go with David's viewpoint, everything's stochastic on this sheet, or you can do just the excess death benefits and then do the deterministic. And you're seeing the rules are not going to come out being so prescriptive to tell you exactly what to do.

FROM THE FLOOR: I've been using this method for three years already, since I was kind of forced into it. One thing I would observe about what you said is that there is a correlation between the death benefit getting bigger and the revenue getting smaller.

MR. LOMBARDI: That's right.

FROM THE FLOOR: Now, you've really got to watch out for that.

MR. LOMBARDI: Absolutely.

FROM THE FLOOR: You can do business and a projection, right?

MR. LOMBARDI: You're absolutely right. And I'm going to comment on that with one of my graphics. I want to say that this stuff is deceptively expensive in certain circumstances and complicated. And, if you try to do some form of hedging, you get into a really, really complicated situation when you go that route.

FROM THE FLOOR: Yes, I guess, you opened the door by mentioning FAS 133. Has it been ruled out that the GMDB feature of this type would be a FAS 133 derivative?

MR. LOMBARDI: There you have a life-contingent benefit; so it's excluded on that basis.

FROM THE FLOOR: I caught your example of 20 years. Shouldn't that be the end of life?

MR. LOMBARDI: Oh, no. This was chosen to fit it on one slide to keep things practical. One of the things that always amazes me is when we read too much into the examples. I think it all started with FAS 97. It's the first time I had seen the

miracle examples put in the back. Particularly, if you come from a statutory world, don't look at GAAP as being that prescriptive. This is purely to try to get at the key concepts — benefit ratios, what's total revenue. It's more meant to be a reasonable example, but not nearly as refined as you need to do with what you feel is your best judgment. If you feel you've got to go out 40 years, go 40 years.

FROM THE FLOOR: Now, for the GAAP model or for DAC amortization, do you use 20 or 30 years or whatever your company's comfortable with? Shouldn't that be stuck in a life product or in mortality? Does it give you any mortality anymore?

MR. LOMBARDI: Well, it's over the life of the contract, which would be to its maturity date. But many companies stop after a certain point when they feel it no longer has a material impact on reserves after that point for projection purposes. But you're setting this benefit liability up for every single contract that's on your books that has it. So you may go out 30 years, but it's like a moving target.

The thinking there is that there's no new introduction of a concept of how far out you want to project. That's really left up to your judgment and what's material and not material.

FROM THE FLOOR: You have referred to the SOPs with reference to variable annuities.

MR. LOMBARDI: Yes.

FROM THE FLOOR: Is there any product or GMDB on variable life?

MR. SCHEINERMAN: Secondary guarantee does it.

MR. LOMBARDI: Do you know if this applies to variable? I want to say it would.

FROM THE FLOOR: I don't see why it wouldn't.

MR. LOMBARDI: I want to say I can't think of a reason why it wouldn't be, but I need to check. I hadn't read it that way. That's a very good question. I want to say it applies to any universal life-type contract with these kind of benefits, and that would be, ergo, variable life.

MR. SCHEINERMAN: But I would point out, I think for products with secondary guarantees that would be a situation where you would have to test for the nonproportionality of the benefit relative to your revenues. So, whereas charge purely is cost of insurance — you're right, that would be proportional — but the secondary guarantees may not be proportional.

FROM THE FLOOR: Would that be applicable to, say, an equivalent pension benefit (EPB) or an earnings enhancement benefit (EEB) in a fixed annuity?

FROM THE FLOOR: I don't see why not.

MR. LOMBARDI: I don't either. Where are you heading? There was a provision that Dave showed. If you have more than a nominal mortality risk here, you're going to classify what, typically, we would call an investment contract as a universal life type of contract and then find yourself in this SOP.

So, if you have a fixed annuity that's typically classified as an investment contract, but now you have something that you consider as having significant mortality risk, you're going to find yourself down the path that we're talking about today.

MR. SCHEINERMAN: I just wanted to make a point that you all have an advantage here, because this SOP's going to be exposed for comments. So any questions or comments that you have on it, that will be good timing to provide that input.

For example, is the complexity of this calculation really worth it or not? That's something that, I think, will get some debate.

MR. LOMBARDI: And I'm going to lobby for something in a minute to simplify it.

Impact on DAC

This is where my lobbying comes in. What you're going to do is start with gross profits as defined in FAS 97, which we're all familiar with. And I'm going to call them for purposes of this presentation "unadjusted gross profits."

You're now going to turn around and subtract the change in the liability that we just calculated and come up with gross profits used to amortize DAC.

Now, this is where I want to put in a plug. When the exposure draft comes out, I would much prefer to keep things simple, that we express this as some sort of level charge — whether it be eight basis points multiplied by the account balance or 15 basis points — and subtract that from the gross margin.

It's very similar to what you get with terminable dividends on a FAS 120 product. You just take them out of the gross profit stream. Or, if you have front-end loads, you just take them out of the gross profit stream. And then all three would have the same gross profit as the basis for amortization.

We seem now to have broken that symmetry in this process and introduced something slightly different, where we have one gross profit stream for amortization of DAC and amortization of front-end loads and another profit stream

for the setting up of this liability. And I don't really see the theoretical basis for making that deviation.

It could be a bit easier in our modeling, but it's something that's a nuance. It's not a big deal. I'm just happy that there's some guidance coming out on setting up a liability.

Now, just to kind of complete it from an algebraic point of view. Table 5 shows your unadjusted gross profits. This is your expense charges, M&E charges and surrender charges, less your reoccurring expenses, and now your excess death benefits. That hasn't changed.

Table 6

How are the new reserves to be calculated ? (continued)		
	<u>Year One</u>	<u>Year Two</u>
MGDB Liability (B)	0.00	51.14
± Adjustment to reflect revised estimates	0.00	0.00
+ Interest on MGDB Liability	0.00	4.09
+ Portion of Revenue used to accrue MGDB ¹	51.14	55.73
- Death Benefits Paid	0.00	12.20
= MGDB Liability (E)	51.14	98.76
<hr style="width: 20%; margin-left: 0;"/> 1. Portion of revenue = Benefit Ratio x Total Revenue = 0.0589 x 868.00 = 51.14		

What you're going to do, though, is turn around and subtract the change in the liability in that equation. Then, once you've done that, you have your unadjusted gross profits straight out of 97, no difference.

Then you're going to adjust them to come up with your adjusted gross profits. Table 6 shows the expected claims for this particular example. You start off somewhat simply, but it's reflective of reality. You start off with no costs or very little costs in the early years, and it grows to be something significant by the end of

20 years. And this liability is the attempt to somewhat level that cost, to get a better matching.

Table 7

How are the new reserves to be calculated ? (continued)									
Year	MGDB Liability(B)	+	Interest ¹	+	Accrual	-	Death Benefits	=	MGDB Liability (E)
1	0.00		0.00		51.14		0.00		51.14
2	51.14		4.09		55.73		12.20		98.76
3	98.76		7.90		59.51		20.61		145.57
4	145.57		11.65		62.87		25.94		194.15
5	194.15		15.53		66.49		31.58		244.59
6	244.59		19.57		71.30		44.05		291.41
7	291.41		23.31		72.49		49.53		337.69
8	337.69		27.02		65.65		52.00		378.35
9	378.35		30.27		76.37		65.93		419.06
10	419.06		33.52		80.12		76.78		455.92
11	455.92		36.47		83.03		93.75		481.67
12	481.67		38.53		85.95		104.76		501.39
13	501.39		40.11		89.09		120.67		509.93
14	509.93		40.79		92.15		142.22		500.65
15	500.65		40.05		95.54		151.25		484.99
16	484.99		38.80		99.29		153.64		469.44
17	469.44		37.56		100.98		210.92		397.05
18	397.05		31.76		102.81		236.72		294.91
19	294.91		23.59		104.38		270.72		152.16
20	152.16		12.17		106.49		270.82		0.00

1. Discount Rate = 8.00%

-9-

Chart 3 shows your pretax operating income before and after you set up an minimum guaranteed death benefit reserve. Now your net benefit costs are going to reflect the change in the liability. So it will be your excess claims that you pay minus the change in this liability. That goes in that net benefit cost line. It's going to dampen your earnings in the early years and result in higher earnings in the later years, because you just have a better matching.

Now, I just want to caution everybody. Do you see where these two lines cross in Chart 3? This basically was the situation in '98 and '99 when these examples were put together. I want to say that, as these benefits get richer and you start selling this to an older population, where those two lines cross gets shorter and shorter.

Instead of being in the 17th year, you'll find that it may be the 11th or 12th year, because volatility and the average age and the type of benefit you're providing will have a dramatic impact on where those two lines cross.

Just like with your DAC amortization, you're going to have to adjust the calculation of the thing on a periodic basis. You're going to have that unlocking effect, and that's what Karen is going to bring into her presentation.

MS. KAREN J. SASVELD: I am going to speak about stochastic, but that's going to come a little bit later in my presentation.

I'm actually going to take us back and walk through a little bit of what Louis did, show it a little bit differently, maybe make some additional points, and then build on that to the point where we get to a stochastic projection.

I'm taking a layering approach, where we start out with a very simple case to illustrate what's really going on, and then build on that. This particular presentation is drawn from an article that was authored by me and David Heavilin that appeared in the December 2001 issue of *Financial Reporter*. So if you've seen that, probably most of this will be similar to what you've seen before. But hopefully we'll open it up to some discussion and make some points that weren't included in the article.

VA Model

We built a model of a variable annuity (VA), and some of our assumptions are listed in Table 7. This was modeled in MoSes™ software, which is released by Classic Solutions. It's a nice platform, because in MoSes™ you can make all of your assumptions stochastic, so it gives you the flexibility to start playing around with them.

Table 8

Assumptions

- Male, nonsmoker, issue age 60
- Single \$100,000 premium
- 6.5% commission rate
- Initial expenses: \$20 per policy and 0.6% of premium
- Maintenance expenses: \$30 per policy and .25 % of account value
- Mortality: 1996 US Annuity 2000 Basic Male

We modeled a male, nonsmoker, issue age 60. We assumed a single \$100,000 premium. We have a 6.5 percent commission rate, initial expenses of \$20 per policy, and 0.6 percent of premium. We assumed our maintenance expenses were \$30 per policy and 25 basis points of account value. Our mortality table is the Annuity 2000 Basic Male Table.

More assumptions are that the M&E charges are 150 basis points and our investment fee is 25 basis points. And then, finally, of course, you want to know what kind of GMDB we had; otherwise, there wouldn't be much point.

We assumed an annual 6 percent rollup on premium, and our fee for this was 25 basis points. I'll just point out that this product is completely a figment of our imagination and does not draw from any one particular company's product.

Exercising with the Model

Once we had our model built, we did five different exercises around it. In all cases, no matter what was going on with our assumed interest rate, we assumed a 7.5 percent discount rate for our DAC calculation; so that remained constant. Also, for purposes of calculating our DAC, we deferred all of our acquisition expenses to the extent that they were recoverable. So any first-year expenses in excess of this amount dropped right to the bottom line.

Exercise 1. We have a VA with no GMDB, and now we're going to stick a GMDB on it. We're not going to hold any reserves. We're not going to even worry about that, but we thought as a base case, we should look into what that does to our profitability before we move into looking at what the SOP does.

We did three deterministic scenarios. We assumed a 5 percent, 7.5 percent and 10 percent return. When we add in the GMDB, this is going to reflect the position of insurers who hold no reserve, which, a few years ago, was much more common; but now it seems that a lot of people have developed some sort of mechanism for holding the reserve on these.

So here's our graph (Chart 4), First of all, we see that when we add in the GMDB with no reserve, lo and behold, in the two scenarios where we've got the 7.5 percent return and the 10 percent return, we're above our rollup rate. Our rollup rate is 6 percent, so we're very happy with this. We're getting fees from our customer for a benefit they're never going to get. So, as you see, our earnings go up, which we would expect.

Now, you'll note in the first year for those two scenarios, there's a slight dip and I think that that's probably due to acquisition expenses in excess of what we were able to defer; so our earnings in the first year are a little bit depressed because of that.

The five percent case is much more interesting, because this is the case where our GMDB actually becomes in the money. The solid squares represent when we have our VA without a GMDB. And the open squares are the case where we've added our GMDB — again, with no reserve.

In the first seven years we're collecting a lot of fees from our customer, but we're not paying out a whole lot yet. The GMDBs are in the money from the date of issue, but we're not having that many deaths relative to the amount of fees that we're taking in. Around year seven is when the tables turn on us, and then we see that our earnings become depressed relative to the product without the GMDB. This is all pretty much according to what we would expect, so we'll move onto our next exercise.

Exercise 2. Here we're taking the product that we just showed you that has the GMDB in it. Now we're going to compare the product without a reserve and the product with a reserve and see how that affects our position. We've used the three assumed market returns in our calculation.

As we would expect with the 7.5 percent return and the 10 percent return, there's not a whole lot going on. When we do our benefit ratio, we get a zero. So we're not holding any additional reserve for our GMDBs because, under our assumptions, they're never going to come in the money.

The 5 percent case was very interesting to me. I fully expected that when we did our reserve, we were going to see our line become much smoother than it is, much more level. I thought it would smooth our profits dramatically, but it doesn't.

We didn't do a whole lot of digging into this, because you quickly get lost in the complexities. Our suspicion is that this is due to that offsetting effect of DAC. So you really don't get as much bang for your buck with this reserve as you might initially think. That DAC offset has a pretty powerful effect.

Exercise 3. Now we're isolating some components shown in the previous graphs and looking at the effect of the return that we assumed, just to see what's going on there.

The direction of the change in results is pretty much what we would expect. The further away we get from our 6 percent rollup rate and the more fees we're collecting because of the higher account value, the more profits we have. So we want our customers to earn 10 percent, rather than 7.5 percent, because we get more of a GMDB fee because it's based off of the account value.

In the case with the 5 percent, as we would expect, we're getting less earnings. But the pattern of profits under the 10 percent and the 7.5 percent is pretty similar; so

it's really just the magnitude of the earnings that's different and not so much the pattern of the earnings.

With the 5 percent, the pattern of earnings is impacted. This makes sense, because our GMDB is in the money. So we're not just collecting the fees on a smaller account value, but also have to make payments under the 5 percent scenario, whereas we don't under the 7.5 and the 10 percent scenario.

That was a little basic, but I think it's worthwhile, because this is such a new thing, and few of us have a great deal of experience with it. It's always nice to look at some of the basic cases and make sure we're comfortable with the results. We're able to get an understanding of what's going on before we move on to the more complicated cases.

Exercise 4. Now we're going to look at a stock market return, and this is the first scenario that we're going to look at where we actually did some true-up (Chart5).

In the 25th month we assumed that there was a big spike or drop in the market values. We used as a base case just the 7.5 % case, because we don't want to complicate it by adding in the 5 percent and the 10 percent cases. We wanted to keep it pretty simple.

So we're trucking along earning our 7.5%, and then, all of a sudden, in month 25, we either get this big spike or this big drop.

At the end of year three we trued up our experience. We didn't unlock our prospective assumptions. So, even though we had just experienced this large change in our market returns, we assumed that the market was going to return again to giving us our 7.5 percent return. So you see that, in the third year, as we would expect, we get a big change in our incidence of profit.

We've had our big spike, and then, in year four, we go back to earning our 7.5 percent. So you see that the pattern of earnings looks extremely similar to the base case, but it never gets back down to that level. And there's a pretty straightforward explanation for that, which is that you've experienced this huge spike, right? So your account value at the beginning of year four is much larger than it would have been otherwise.

The reason we continue to generate higher profits is because we're charging our fees to the GMDB on a higher account value base. So, when you think about it, it's a pretty straightforward explanation. And it's interesting that both spikes were just 10 percent but later year profits are closer to the base case in the shock-up scenario.

Exercise 5. Now for the moment everybody's been waiting for, the stochastic run. We stochasticized our interest rates. We did not stochasticize any other assumptions, although we could have, and that's something to consider. But I believe that we did develop a dynamic lapse assumption, so our lapses were somewhat coordinated with our interest rates.

We projected 100 randomly generated scenarios using the economic scenario engine in MoSes™. It was based on a 7.5 percent average return based on our base case, and we assumed 20 percent volatility.

Then GAAP earnings were calculated deterministically, so it was if we were standing at the date of issue projecting this forward. We used a 10-year horizon for simplicity. So we're standing at our time of issue, projecting it for 10 years and did not do any true-up or unlocking in the interim periods.

Chart 6 shows the present value of gains at time zero over our 100 scenarios. The thing that surprised us most about this — well, two things. First of all, under the majority of situations, we do OK. We get positive profits. So there are only maybe 30 scenarios in which we have negative profits.

The other thing that surprised us was that we kind of expected that scenarios one through five would be a lot worse than they were. Our worst case looks like it's about negative \$6,000, whereas the best case is about \$20,000 positive. So, all in all, if you weighted these, you would probably come up with a pretty decent product, depending on what your individual ROEs and bogeys would be. But, overall, we thought it would be a lot worse than it is, particularly in the couple of worst scenarios.

And, now, a few conclusions to wrap up.

You really need to give a lot of thought to the range of assumptions that you're going to use in your calculations. Nowhere does it tell you that you need to use stochastic modeling. For a lot of companies who are not currently doing stochastic modeling for any purpose, that could be a lot to bite off all at once.

Our situation of using the 5 percent, the 7.5 percent, and the 10 percent might be overly simplistic. It is a range of scenarios, but maybe that doesn't tell you as much as you'd like it to, since two of the scenarios, if we're doing it deterministically, are not going to tell you anything valuable. So a lot of it is going to come down to what management finds valuable and what kind of information they're looking for.

One thing that we try to encourage people to do is to move beyond looking at this as simply a requirement of GAAP reporting and look at it as a means of learning more and understanding more about your business. You have to do it anyway. If you add in maybe 10 percent to 20 percent more effort, you can probably get a lot

of value out of it in terms of reporting to management. You may choose to use stochastic variables for assumptions other than interest rates. What that brings up is making sure that those assumptions are then reasonably consistent internally. The GMDB reserve may have material earnings impact when separate account performance deviates from expected. I think we all sort of expected that that would be the case. But maybe it's not as bad as some of us thought it might be.

You have this nice offset with the DAC, as the DAC amortization will dampen but not eliminate the impact of the GMDB reserve. But in some cases, particularly for some of my clients who have had problems with GAAP contributing to the volatility of their products, incorporating the GMDB reserve will have a little bit of an offsetting impact and may dampen some of that.

MR. JOHN FROEHLE: Forgive me if you answered this already, but can we redetermine significance for an in-force VA, which is, say, currently classified as an investment contract?

MR. LOMBARDI: For your in-force contracts, yes. And you would have a cumulative adjustment.

MR. SCHEINERMAN: But, if after adoption, you've classified a VA with a return of premiums feature, for example, as an investment contract, and then it turns out that the return premium feature now becomes significant, you could not reclassify it. The only time you can reclassify is upon adoption.

MR. LOMBARDI: Let me broaden Dave's viewpoint on that: You have a new standard coming out, so you get a one-time chance to reclassify, but this is true under any FASB classification. Once you classify a contract at issue, you cannot change it down the road, unless you made a mistake in the process.

MR. FROEHLE: But we can use a standard as an opportunity to do that?

MR. LOMBARDI: Yes, when this becomes exposed and adopted by the FASB, you'll get this one-time opportunity.

MR. FROEHLE: Now, what if a company was using something other than EGP for amortizing DAC on an investment contract, like interest method? The company reclassifies the contract and moves to EGP. Will you provide any leadership on how they should handle the impact on DAC?

MR. LOMBARDI: OK. What you've done is classified your annuity contracts as investment contracts, adopted the principles of FAS 91. Now, you're saying, "Wait, I have more than a nominal mortality risk here." You're going to have to reclassify it from FAS 91 to universal life type. And that's going to turn around and cause you to change your amortization techniques for that as well.

MR. FROEHLE: Right, yeah. And it could have a pretty large impact on your report of DAC when you implement that, true?

MR. LOMBARDI: Yeah.

MR. FROEHLE: I can see practical implications for taking an in-force contract and trying to test significance or determine a benefit ratio and trying to hook up historical to expected when you haven't kept track of excess amounts paid, for instance, historically. Will the SOP provide any leadership on practical workarounds?

MR. LOMBARDI: I would doubt it. I would just say that there you would just use your best judgment and work with your auditors. You know this is not a new problem that you'll encounter.

MR. FROEHLE: I see another potential problem with the reserve. I think the reserve is a good idea, but one that's akin to DAC for VAs, which is catch-ups due to the difference in the market for a reporting period versus what one had projected. That can have big catch-up impacts on the DAC. I could see this happening, especially as this VA with this reserve gets older and has some history behind it.

MR. LOMBARDI: That's right.

MR. FROEHLE: When one changes the benefit ratio, all of a sudden, there could be a pretty large impact. I haven't found guidance on how to modify that impact. I don't know that it's appropriate to modify it, anyway, or find a methodology to change your projections. Eventually the market is going to come through on this reserve or DAC.

MR. LOMBARDI: Who are your auditors? (laughter)

MR. FROEHLE: I'm not suggesting doing anything.

MR. LOMBARDI: No, I would just say work with them. They can give you some guidelines on that.

FROM THE FLOOR: The same issue with DAC is that DAC is probably bigger, because, usually, there's going to be a bigger percentage of your EGPs than this probably ever will. So I think, from a DAC perspective, you're probably dealing with a lot of companies that are just scared of really looking at their methodology and considering something more dramatic like a corridor method or an averaging technique, whatever you prefer might be more appropriate.

MR. FROEHLE: I guess I'm saying that I haven't found any official guidance in FAS 97 or anywhere else on what methodologies to use. So, if a person is looking for what's generally accepted, they're trying to find out what other companies do.

MR. LOMBARDI: There is nothing that you could hang your hat on in the GAAP literature. The best advice is to work with your audit team on this, and they're going to be sensitized to this. This is not unique to you. It's a very systemic problem.

MR. FROEHLE: Thanks. I have one more question. Now the SOP precludes a reserve for guaranteed minimum income benefit (GMIB).

MR. SCHEINERMAN: That's correct.

MR. FROEHLE: And the understanding is that when a person annuitizes, that's when that benefit becomes real. It's a separate contract, no reserve during the deferral period, right?

MR. LOMBARDI: That's right.

MR. FROEHLE: Now, an actuary might find it's prudent, though, to set up a reserve during the deferral period.

MR. SCHEINERMAN: For stat.

MR. FROEHLE: Will that be revisited in the SOP? It seems like we're kind of following a technicality here on financial standards and deciding we can't hold a reserve for GMIB.

MR. SCHEINERMAN: That should be an item discussed in the exposure draft. I think that deserves a question and commenting on.

MR. FROEHLE: OK, thank you.

FROM THE FLOOR: I thought the presentation was excellent. I have a question about exercise 5. You stated that you used a 7.5 percent mean and a 20 percent volatility in your scenario generation. Is it safe to assume then that the method used was a random-walk-type generation method for equities?

We know from the studies that the Canadian actuaries are doing on regime-switching models that a standard lognormal method isn't going to capture the effects of higher moments in the volatility of the distribution, and that using a regime-switching approach or a more sophisticated approach might give you more periods of good returns and then a state of bad returns, which a VA product with GMDBs is going to be more vulnerable to.

So perhaps the results of exercise 5, with a rollup benefit anyway, might be optimistically stated if you look at a standard lognormal random walk that way.

MS. SASVELD: Yeah, I think that's definitely true. And we did not put a lot of thought into the actual scenario generation, simply because it was designed to be an example. We didn't want to get too involved into how we selected that. But I think you're right. With all the assumptions you're going to use, you need to make sure you put a lot into deciding if are you generating biases in your results by your selection of a stochastic generation method.

MR. FRANKLIN CLAPPER: We reinsure a lot of GMDBs and also some GMIBs, and I don't have that distraction of worrying about the underlying product. All I have to do is worry about reinsurance premiums and benefits, so I was able to focus on this.

I have a couple of observations. As far as the model's concerned, we've discussed that sort of thing in the risk-based capital discussions for equity-based products. And, as far as I know, lognormal is good enough for reserves. It's only when you get into the tail where you really need to worry about regime-switching; so I don't know why that should be a concern.

Second, in terms of methodology and the projection, I've experimented with a lot of different techniques.

I started out doing simple projections. By the way, we project everything stochastically every quarter, because we have to do it for other purposes anyway. So I've been piggybacking off those projections, and they true-up the projections according to the "in-the-moneyness" of the policies at the time, which is important. And then you may or may not choose to change the assumptions.

I've sort of elected a stable set of assumptions for the future, because I don't like to have to explain changes in assumptions on a stochastic projection. It's very difficult. It's difficult to do and it's also difficult to justify, when you think about it. So I took care of that problem in that manner, but I look at a range of results between the 50th and the 90th percentile. If you're looking at the revenue just for the GMDB, not the total revenue of the policy, but the revenue specifically for the GMDB, your expected costs might be 20 percent of that revenue. And the revenue would cover something like up to the 80th or 90th percentile of results; so you can sort of draw from that. And I have some kind of a target loss ratio of 80 percent in the beginning.

I think we're entitled to take some margin for uncertainty in the beginning; and, as time goes on, that margin for uncertainty should wear off. I think that's justified because of the nature of the product. It's different from traditional products in

which you have less margin for uncertainty. But here you have lot. In fact, it's the biggest component of your price.

MR. SCHEINERMAN: We didn't talk about what the SOP says about reinsurance, per se, but it does provide guidance that a reinsurer should reserve for the GMDB benefit in a similar manner as the direct carrier. And their assessments are obviously a small fraction of the direct carrier.

And the SOP lays out the same methodology. It talks about best estimates rather than margin for uncertainty.

GMDB, on the other hand, to the extent that that's typically a derivative—because it's net-settled on the reinsurance in fair valuing that—there is some provision within GAAP literature Concept Seven that provides for market value margins and uncertainty.

MR. CLAPPER: But what I was getting at was, it's not really valid to use the straight best estimate with this product, because it's going to be very, very volatile, and it really won't tell you anything about what your earnings should be. And I submit that the earnings should be a fairly level percentage of your revenue, adjusted for what information you have, both historically and prospectively. In other words, you have a better idea of what your experience is and also a better idea of where the markets are going, and you can factor that into your reserve along the way.

MR. SCHEINERMAN: Right. But isn't that what the SOP is providing by updating that benefit ratio? It updates for information you have. And to the extent that you've been reserving 70 percent, but you should have been reserving 80 percent, it catches you up and vice versa.

MR. CLAPPER: Yeah. But my key point is that, in the beginning, I know so little that I automatically hold an 80 percent loss ratio. And as time goes on, I try to true it up toward the best estimate, up or down.

MR. SCHEINERMAN: Yeah.

MR. CLAPPER: But in the beginning I have to hold that margin or I'm dead in the water, because I have no room to maneuver on earnings.

FROM THE FLOOR: I interpret the SOP as saying you do have room for that, because it tells you how to determine present value and have benefits or, I guess, for significance, it tells you what the formula is, but it doesn't tell you what result is significant and what isn't.

So if you wanted to look at the tail and take the average of the worst 10 scenarios or take the 70th or 80th percentile and do the same sort of thing with your benefit ratio, I guess somebody at the SOP needs to say, "You probably could. It's up to the actuaries' interpretations and judgment."

MR. LOMBARDI: You're right. It's not going to be that precise; so it's going to be left to your judgment and what you can defend.

MR. EJAZ HAROON: My question is about the thing that you said about using the same approach as you do for DAC. My understanding is that, for DAC purposes, you would group the contracts. If you use the same grouping here, is there a possibility that the sufficiencies would offset the deficiencies?

MR. LOMBARDI: You have to be a little careful when you group, because you're going to have contracts that are going to be in the money and contracts that are going to be out. But just say you have one way in the money and one way out, if you add them together, you're going to get a different cost structure than if you treated them separately. And I would say that you'd want to be very sensitive to that, because you want to get at what you expect your costs to be.

MR. HAROON: So you think that the ideal reserve would be a seriatim reserve?

MR. LOMBARDI: For some carriers, that would be impossible to do. There are companies out there with several million contracts. So I would say that grouping is still very appropriate in this thing. You've just got to be careful. As with any grouping for any type of a calculation, you need to group, but not in the process. Eliminate some true cost in that grouping process.

FROM THE FLOOR: I don't think there's any distinction between in the money and out of the money for this purpose. If the contract is in the money by using equities, then maybe it's less risky than a contract out of the money, but it's in a money market account. You have the right to switch accounts every period.

MR. LOMBARDI: I wouldn't agree with that, but that's OK.

Chart 1

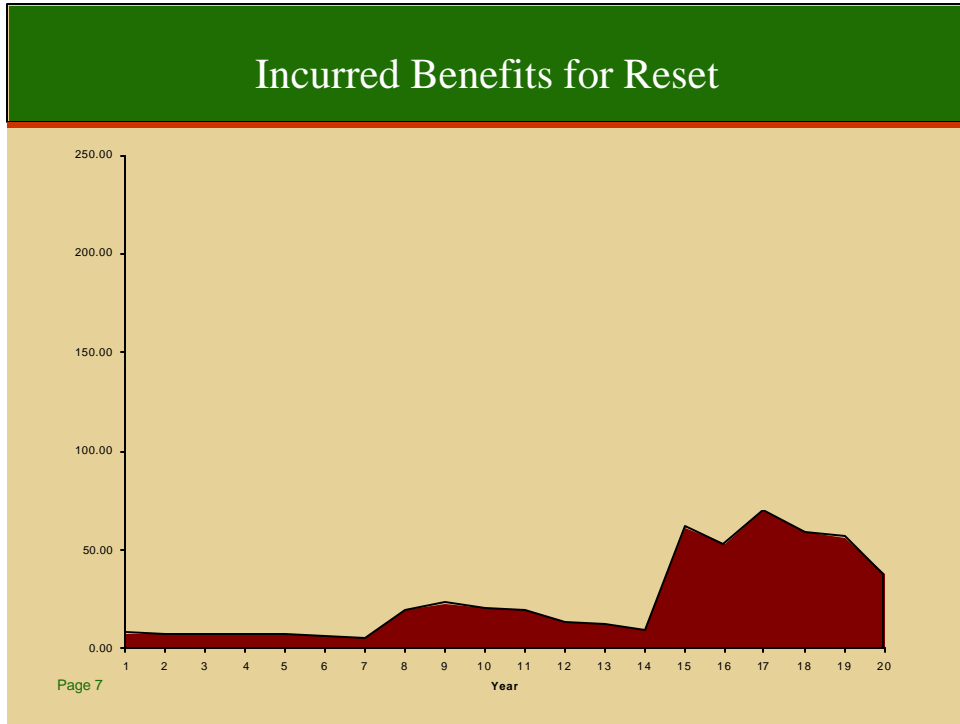


Chart 2

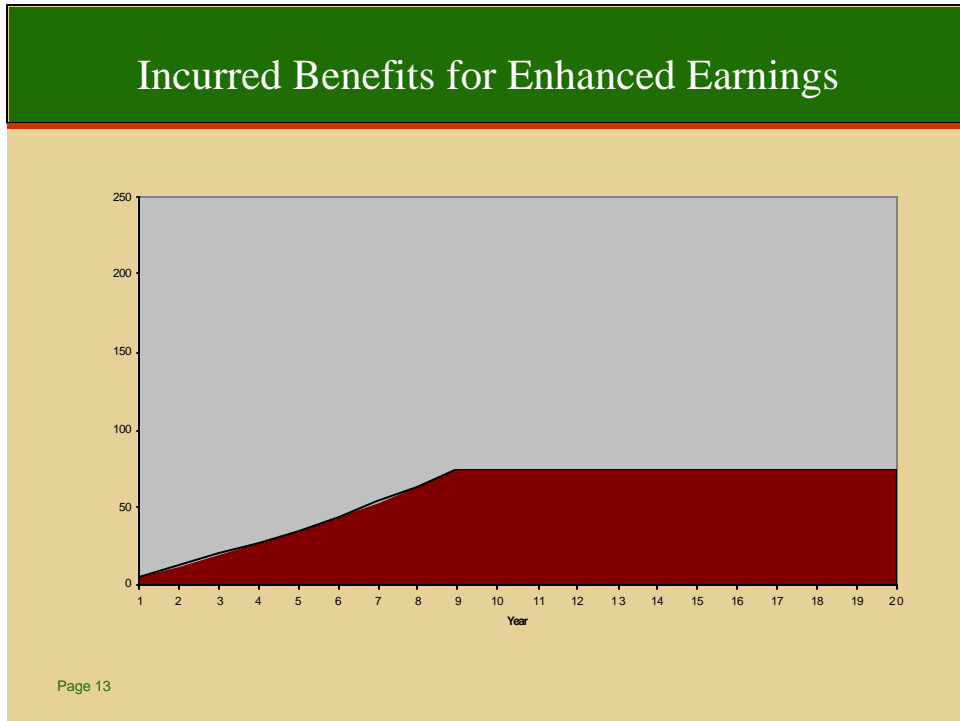
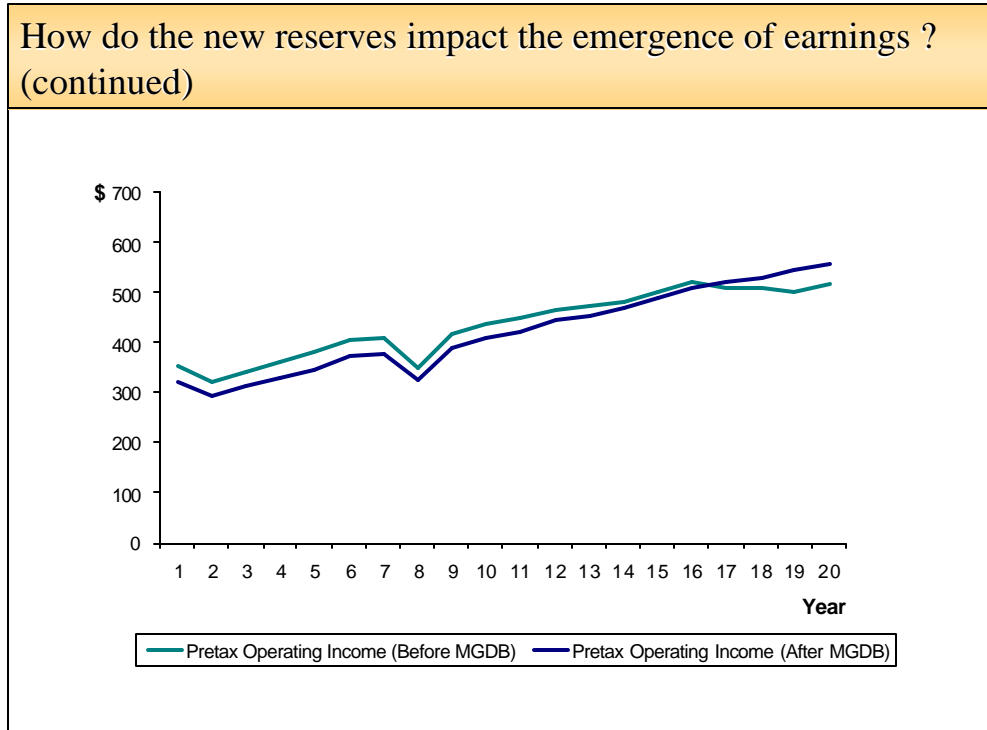


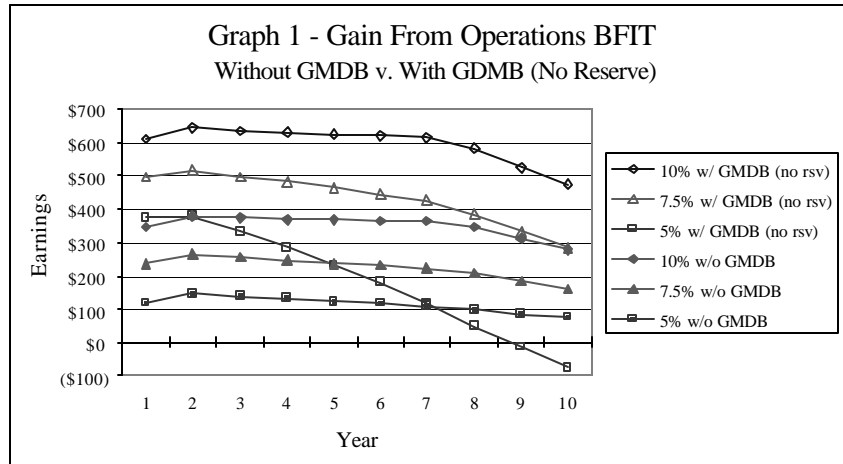
Chart 3



-18-

Chart 4

Exercise 1: With and Without GMDB

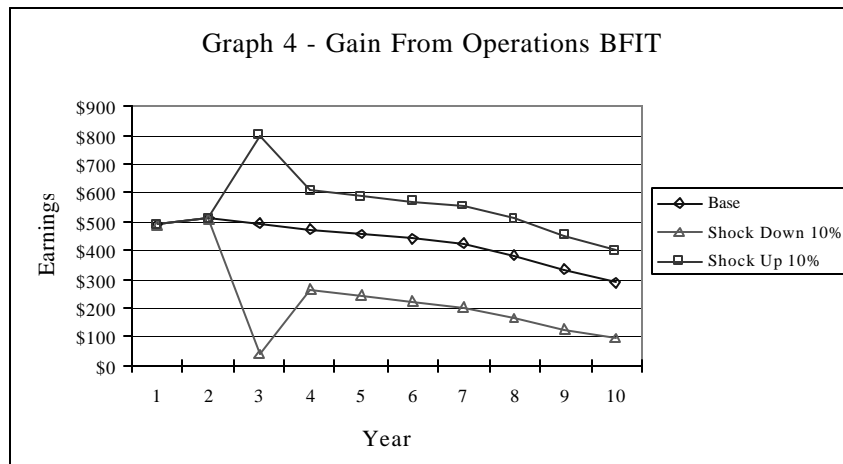


5

October 22, 2002

Chart 5

Exercise 4: Shock Market Return



13

October 22, 2002

Chart 6

Exercise 5: Stochastic Interest Rates

