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## Session 142OF
## Valuation and Capital Requirements for Guaranteed Benefits in Variable Annuities

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| **Track:** | Financial Reporting |
| **Moderator:** | LARRY M. GORSKI |
| **Panelists:** | ROBERT A. BROWN |
| | THOMAS A. CAMPBELL |
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*Summary: This session focuses on U.S. statutory and GAAP reserving and risk-based capital (RBC) requirements associated with guaranteed minimum death benefits, guaranteed living benefits and enhanced earnings riders used in variable annuity contracts. At the conclusion of this session, attendees have an enhanced understanding of the common guaranteed benefit designs used in variable annuity contracts, how these designs are reserved under U.S. statutory and U.S. GAAP basis and what the RBC requirements are for these benefits.*

**MR. LARRY M. GORSKI:** My name is Larry Gorski, I'm the moderator for this session and I'll also be a presenter. One of our other presenters is Tom Campbell. Tom's an FSA and a member of the American Academy of Actuaries. He is the vice president and corporate actuary and the appointed actuary at Hartford Life Insurance Company. He's been with Hartford since 1983. Tom is responsible for the actuarial review, financial reporting, reserve valuation and actuarial compliance functions. I'm sure most, if not all, of you know that Tom is very active in the work of the American Academy of Actuaries. He's a member of the Life Practice Council, chairs the Council's Life Valuation Committee and co-chairs the Academy's Variable Annuity Guaranteed Living Benefits working group.

Bob Brown, our third presenter, is also a Fellow of the Society of Actuaries and a member of the Academy. He started work in 1964 at CG Life, now Cigna. He is also very active in Academy work. One of this major legacies is the C3 Phase I project. That project introduced modeling into the regulatory Life Risk-Based Capital (RBC) formula. Currently he is focusing on extending the modeling approach to guarantees on variable annuities (C-3 Phase II).

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I'm Larry Gorski. I am currently the life actuary at the Illinois Department of Insurance. I've been with the Department since 1973. I'm also Chair of the NAIC Life Risk-Based Capital working group and am semi-active on some of the same Academy groups as Tom and Bob.

To set the stage, we'll be dealing with variable annuities with guarantees. We will not be dealing with equity-indexed annuities. We will be dealing with both left tail and right tail risks. When you hear the phrase left tail risk, think of underperformance and the risk associated with that. When you hear right tail risk, think of better-than-expected performance and the risk to insurers associated with that phenomenon. We'll be dealing both with reserves and risk-based capital.  Some people may think of this as simply a geography question: reserve being  a balance sheet item, and RBC an off-balance-sheet item. There's really more to it than that. In trying to integrate regulatory reserve requirements and regulatory risk-based capital, one quickly realizes that there are certain constraints we have to live with. One of the constraints deals with the application of the Commissioners Annuity Reserve Valuation Method (CARVM). You don't have this constraint in RBC. You can use a modeling approach. The line that Tom and Bob are trying to find is the fine line between reserves and risk-based capital.

We'll be dealing primarily with actuarial modeling and not option pricing techniques, but there may be some use of that terminology in comments made by Tom and Bob.

My job today is to set the stage. One of the things you're quickly going to see is that all of the presenters will be using many acronyms, such as GMDB or MGDB for guaranteed minimum death benefits, and a whole slew of other acronyms in their presentations. I want to make sure everyone's on the same page when they hear an acronym and have a pretty good understanding of the kind of benefit we're talking about.

In the early days of guarantees on variable annuities, we saw return of premium benefits. This was the original form of death benefit. The next generation introduced some kind of annual percentage increase, often called a roll up type benefit. With this form of GMDB, the initial death benefit is set equal to the initial premium. The typical annual increase is 5 percent. The annual increase is compounded. The amount is adjusted for additional purchase payments and cash-outs. Also, with this type of design, the benefit may be terminated at a specific age. Now I think it's more typical to have the increase stop at an advanced age.

Next, we have an annual step-up type design in which the benefit is the greater of a current contract value and prior anniversary step-up value. The name is very descriptive of the results of the benefit definition. With this GMDB the amount is adjusted for additional purchase payments and cash-outs. Step-ups also stop at advanced age, usually about 80.

Then we have an enhanced version, which is the greater of the roll-up and step-up type benefits. As a regulator, one of the things I usually get concerned about occurs when I see a continuous migration to a more lucrative benefit design. The concern is

whether people are really analyzing the benefits they are seemingly giving away. Maybe today's environment will make that concern a reality. The enhanced version has an increase in benefit charge relative to a step-up benefit of about 20 to 30 basis points. So that gives you some feel for the marginal cost of the greater-of type benefit relative to the step-up benefit.

The earnings protection death benefit is a benefit that has a right tail risk. The death benefits I've been speaking of so far have been left tail risks. This is a right tail risk benefit. The death benefit is a percentage of policy earnings to the date of death. The benefit is combined with other death benefits, so you'll have a left tail risk and a right tail risk, which may give you some opportunities for internal hedging. The typical benefit is 40 percent of earnings. The percentage may vary with the age of annuitant or owner at the time of application. Again, this is a right tail risk product benefit.

Now I'll move into the guaranteed living benefits, and again there's quite a bit of variety with these. With the basic version of the guaranteed minimum income benefit (GMIB), you have a right to annuitize during a window of defined term at each anniversary after a specified duration or waiting period has elapsed. So there's a combination of parameters that define the actual benefits. The payments at annuitization are equal to the greater of payments determined by applying current fixed-annuitization rates to the guaranteed account value and payments determined by applying guaranteed fixed-annuitization rates to the GMIB value. The guarantees are set at issue so the policyholder has a good idea of what the guarantee is. The guarantee is either elected or not, depending upon the performance of both equities and interest rates. This is a benefit that brings into play both the equity process and the interest-rate process. The defined window for making the election is typically 30 days following any policy anniversary. The waiting period, or the specified duration, is typically 10 years. I have seen designs with shorter waits, such as six or seven years. That has some real relevance today realizing that this benefit has been around for only four or five years, and if you have a six- or seven-year specified duration, these benefits are getting pretty close to the first election option date.

There is also an enhanced version, and again the enhancements are variations of the same kind of enhancements on the death benefit side. The GMIB value is increased by a percentage each policy anniversary before a specified age. Again, the typical annual increase is about 5 percent and the increases usually stop at about age 80. There are also the greater-of type benefits, in which one of the two components is the annual increase and the other is the annual ratchet type of benefit. The marginal cost for this benefit relative to the roll-up type of design is about 25 basis points.

From a risk-control standpoint, the guaranteed annuitization provided within the GMIB comes through the annuitizations benefit provided. It is generally a life with certain benefit period of about 10 years, and it has to be a fixed annuity and not a variable annuity.

Then we have a guaranteed minimum accumulation benefit (GMAB). This benefit is not very popular in the United States, but may be more popular in Canada. There are

some U.S. insurers that provide this benefit in the United States. It has a guaranteed minimum accumulation amount during a specified window after a specified waiting period. So it has the same kind of structure as the GMIBs. The specified waiting period is usually about 10 years. Specified windows typically begin on an anniversary date and remain open for 30 days. Again, there are enhanced varieties in which the minimum accumulation amounts are either roll ups, maximum anniversary values or the greater of the two.

The guaranteed minimum maturity benefit (GMMB) is similar to the GMAB,  but it's only available at maturity of the contract. The guaranteed income protection benefit (GIPB) takes effect after annuitization. The guarantee is that annuity benefit payments after the initial will not be less than a specified percentage of the initial payment. Again, there are design features to help control risk. The benefit may not be available for all annuity options. The typical type of limitations deal with the assumed interest rates for determining the initial annuity payment (3 percent) and benefit options (life with minimum certain periods).

There are also enhanced surrender value benefits, which we won't really be discussing in this presentation. They're payable upon surrender during the first n years of the coverage segment. The benefit equals a factor times premium received in the coverage segment. So the benefit does not vary with market performance. It's a way of replacing a portion of the surrender charges and, as I have been told, is needed in some of the corporate-owned life insurance (COLI) markets.

The information in Figure 1 comes from one of the interrogatories in the statutory financial statement. It gives some idea of the level of exposure, in this case, aggregate industry as opposed to company by company. It gives you some idea of the relative amounts between benefit types. Of the total $15.7 billion of account value, $13.3 billion have associated GMIBs. So you can see it's heavily skewed to GMIBs. The next class, the GMABs, have about $1.3 billion, and after that it gets pretty trivial. The counts at the bottom, the counts of account value and the count of reserve amounts, are the number of companies that reported information within those various benefit types. This double counts exposure. While you'll see 53 entries, the count is probably closer to around 42 or 43. Most everyone has a GMIB, but there are a few companies that sell the other design without the GMIB. So the actual number of companies active in the guaranteed living benefits market is somewhere in the low 40s.

Currently there is no information in the annual statement of exposure to GMDBs, so I can't share that with you. Personally, I think a good source of information for regulators is the New York State Insurance Department. I thought they did a good job in surveying companies for GMDBs and guaranteed living benefits. So this information gives you some feeling for the amount of account values out there that contain these types of guarantees. The next line is the reserves on these guarantees. This is as of Dec. 31, 2001, and undoubtedly it's significantly higher now. It was significantly higher at June 30, and it might be a little bit lower than that now, but it gives you a ballpark measure. The reserve for GMIBs on account values of $13.3 billion is about $205 million.

Figure 1

Exposures (12/31/01)

| | GMIB | GMAB | GIPB | GMWB | GMMB | EEG | |
|---|---|---|---|---|---|---|---|
| Sum of AV | $13,327,907,373 | $1,307,269,873 | $405.230.290 | $211,340,785 | $263,055,600 | $155,356,950 | $15,670,160,844 |
| Sum of Reserve | $204,933,106 | $29,293,136 | $1,250,842 | $3,735,908 | $536,028 | $176,410 | $239,925,430 |
| Count of AV | 37 | 10 | 2 | 1 | 1 | 2 | 53 |
| Count of Reserve | 37 | 10 | 2 | 1 | 1 | 2 | 53 |

Now I'm going to segue into Tom's and Bob's presentations. Certain decision points were very important in trying to develop the reserving and RBC methodologies. Both the scope and complexity of the methodologies are very important, as well as how one integrates the reserves and RBC methodologies to come up with a consistent framework. We're dealing with what I'll call the industry bias toward methodologies with a stable results, while regulators would probably be interested in more current, or market-based information, which tends to be more volatile. So there's a difference in viewpoint in this area.

Also, we're dealing with a low-frequency, high-loss type of benefit. While Bob and Tom's comments are going to focus on reserving and RBC, regulators are actually moving forward and thinking about risk-management issues. As we move toward a risk-assessment-based regulatory framework, understanding and evaluation of an insurer's risk-management practices is going to become more and more important. So we'll be asking questions such as: Can these guarantees be hedged? If the guarantee is hedged, is it being hedged in a static or dynamic hedging fashion? If one is using dynamic hedging, what kind of operational risks are creeping into the process, and in either case is the hedging effective? So we'll be moving in time from reserving and RBC considerations to considerations dealing much more with risk management.

**MR. THOMAS A. CAMPBELL:** Today I'm going to discuss the statutory and GAAP requirements for these guaranteed benefits. I'm going to look at what's currently there and what we have to deal with today, and then I'm going to try to predict what it's going to look like a few years from now.

Figure 2 is a chart that shows what the current requirements are and this is for MGDBs as well as all the major types of the guaranteed living benefits. We call them variable annuity guaranteed living benefits (VAGLBs). There are three of them on this chart, and the third one is a guaranteed payout annuity floor (GPAF), and I think that's the same thing that Larry referred to as a GIPB. What we see here with the statutory and GAAP requirements is really a bit of a patchwork.  For MGDBs, we've got Guideline 34 in place for statutory reserves. It's an integrated Commissioners Annuity Reserve Valuation Method(CARVM)-based methodology, and it's been out since 1998. I'm not going to talk much about it today because, quite honestly, I've been talking about it

for about seven or eight years now, and I think it gets enough discussion. On top of that, when you look at RBC, there is no RBC requirement. When you look at VAGLBs, there are interim standards in place or soon to be in place for both reserves and risk-based capital. Actuarial Guideline MMMM is in place for statutory reserves. Neither the reserves nor the risk-based capital really fit the risk profile of the benefit and that's a problem, but again it's meant to be interim. Then on the GAAP side, we do have the recently adopted FAS 133 requirements, which I'll talk about. It doesn't apply to all the benefits, and so what we're left with is diversity in practice, particularly for the death benefits.

Figure 2

| Benefit | Statutory | | GAAP Reserves |
|---|---|---|---|
| | Reserves | RBC | |
| MGDBs | AG 34 | none | varies |
| VAGLBs | | | |
| GMABs | accumulation of fees | interim formula | FAS 133 |
| GMIBs | " | " | no reserves |
| GPAFs | " | " | FAS 133 |

*GAAP and Stat Requirements*
*Current*

Now, the reason for this patchwork is because a lot of these standards, such as FAS 97, FAS 60 and CARVM, have been in place for many years and when they were put in place, no one ever thought about these benefits. So, what we're trying to do is retrofit things and then we end up with problems because at this point we haven't changed the laws, and we haven't changed FAS 97, so we're left with this patchwork.

Currently there are a few groups that are looking into addressing these issues. The Financial Accounting Standards Board (FASB), the American Institute of Certified Public Accountants (AICPA), the National Association of Insurance Commissioners (NAIC) and the Academy are all looking at these benefits and trying to come up with something that makes more sense.

So several years from now, the chart could look like Figure 3. We may see the C-3 Phase II, which Bob's going to get into, for both statutory reserves and risk-based capital, and we're likely to see a new framework for minimum guaranteed death

benefit GAAP reserves. That's the Statement of Position (SOP), and I'll talk about that.

Figure 3

| Benefit | Statutory | | GAAP Reserves |
|---|---|---|---|
| | Reserves | RBC | |
| MGDBs | C-3 Phase II | C-3 Phase II | SOP |
| VAGLBs | | | |
| GMABs | C-3 Phase II | C-3 Phase II | FAS 133 |
| GMIBs | " | " | no reserves |
| GPAFs | " | " | FAS 133 |

*GAAP and Stat Requirements*
*Potential Future*

One thing that I think is for certain when you look at the current requirements is that they're going to change, and this may be what it looks like. People often don't worry about what new standards are going to be until they become final, and that's usually the easier road to take. It's usually easier to take a wait-and-see approach, but it may not be a good idea in this situation. There are two reasons. The first reason is a more practical one. All these approaches are going to require a lot of modeling. It's going to be complex modeling, and it's going to require many stochastic scenarios. There's been a lot of discussion about this over the past few months, and so my advice is that you're going to have to sharpen your computer.

The other reason is that all of these potentially new requirements are going to be applied retroactively. The GAAP SOP is applied retroactively, the RBC requirements are applied retroactively and the statutory reserves will likely also be retroactive. That means they apply to the products that are on your books and that you're selling today. We talked about all these risks. There's also a regulatory risk. The regulatory risk is that the rules may change, so if you're pricing a minimum guaranteed death benefit and you're assuming no risk-based capital, and the rules change and Guideline 34 stays in place and it's got a new risk-based capital, you're going to have to put up a lot more capital than you thought you did when you priced it. So these are things that you really need to look at more closely as you price and analyze your risks going forward.

So what are all these requirements? I already have mentioned Actuarial Guideline 34

for GMDBs. I'm not going to get into much detail there. On the VAGLB side we've got Actuarial Guideline MMMM. This has been something that the NAIC, with help from the Academy, has been working on for many years. Up until this year, there was a prospective integrated CARVM method, somewhat similar to Guideline 34. The prospective approach was dropped earlier this year and there are a lot of reasons for it. The biggest is that it didn't really fit with the proposed RBC requirements. It's been replaced with a simplified interim approach that requires you to first look at your base variable annuity, which means you ignore the fees and you ignore the living benefits and you calculate reserves presumably with Guideline 34 for the death benefits. For the living benefits, you hold the reserve in the general account and that reserve is going to be equal to an accumulation of fees. It's actually a sum of fees accumulation at 0 percent. Then the Guideline requires that you do a stand-alone asset adequacy analysis on that accumulation of fee reserve. You just look at the fees, benefits and, obviously, the assets supporting the reserve that you calculated. This is a very new requirement, and if you haven't been following this closely it may come as a surprise.

The Life and Health Actuarial Task Force (LHATF) of the NAIC has adopted Guideline MMMM. It's going through the NAIC Executive Committee and it's expected to be adopted in December. It's expected to have a Dec. 31, 2002 effective date. So if you're writing these living benefits on variable annuities, you're going to have to do asset adequacy analysis on a stand-alone basis for these benefits.

There is a Life Practice Note that the Academy's Life Valuation Subcommittee is working on. It's expected to be finished by December 1 and will be posted on the Academy's Web site.

Another current requirement is the interim risk-based capital charge for VAGLBs. As I said, there is no explicit requirement for minimum guaranteed death benefits. The VAGLB requirement is a percentage of total reserves. You're supposed to use w percent. You can use 1 percent for contracts that are out of the money if your company provides a clean actuarial opinion, but the problem here is that because it's applied to account value, you get a counter-intuitive result. As the account value drops, your risk goes up, but your risk-based capital goes down. This doesn't really fit the risk profile, so this is why the NAIC with a lot of help from the Academy is looking at a new methodology.

The potential future requirement is what's called the C-3 Phase II project. It's going to apply to variable contracts with guarantees, including VAGLBs and MGDBs. I'm not going to get into a lot of detail because Bob's going to do that, but I do want to touch on a couple of things. It involves modeling the benefits. You project out the contracts that have these guarantees, and you look at the present value of statutory income. You rank your results and you look at the tail and you take a slice of the tail. This methodology is called the conditional tail expectation (CTE). At this point the proposal is for a 90 CTE, which means the average of the worst 10 percent of results, and the goal is to have something in place at the end of 2003.

Another future requirement is applying this methodology to reserves for VAGLBs with

possibly a lower CTE level. LHATF and the Academy are starting to talk about this. The thought is that maybe you use a level of 60 or 65 CTE and then what will happen is the 90 CTE will become a total balance sheet requirement. That is very similar to what they do in Canada. Then the 65 CTE would be the reserve and the difference between the 90 CTE and the 65 CTE will be the risk-based capital. The other thing this could do is replace Guideline 34. Many people feel Guideline 34 provides results that are too volatile. Many people feel it's too conservative. The CTE appears to be a much better approach for minimum guaranteed death benefits.

Larry mentioned the up side risk of some death benefits in his comments concerning the earning protection death benefits. This would be a good fit for those benefits. If you're applying Guideline 34 to those benefits, it doesn't really work because Guideline 34 assumes drops in the account value and, obviously, the risk increases for the earnings protection benefit when the funds perform well. This could be something that could be used for death benefits or living benefits. There's going to be a lot more discussion over the next year or so. It's possible the reserve portion could be in place for 2003, but it is more likely that it's going to be year-end 2004.

That takes care of the statutory side. I'm going to turn to the GAAP side.

There are two standards that you need to look at in trying to apply GAAP to the benefits. The first one is FAS 133, which provides accounting guidance for derivative instruments and hedging activities. It's a new standard that became effective in 2000. The standard does exclude life insurance contracts, but it also says that it applies to certain contracts that contain derivatives that are embedded, and that includes insurance products. These are called embedded derivatives and so there are some annuity products, which I'll talk about in a minute, that fall into the scope of embedded derivatives. FAS 133 requires derivatives that meet certain criteria to be recorded at fair value on the balance sheet, and then the change in the fair value goes to the income statement. There's a Q&A for 133 that the Academy's Life Financial Reporting Committee put together. It's on the Academy's Web site.

Now, in order to deal with all the issues facing the implementation of the standard, FASB established what's called the Derivative Implementation Group (DIG). They put out several issue papers. A lot of them deal specifically with insurance products. Some of them deal specifically with VAGLBs. I'll talk about those. You can get them on the FASB Web site.

The second standard is a proposed Statement of Position on nontraditional, long-duration contracts. This is a standard that the AICPA worked on. It's cleared with FASB. It is currently in the comment period. The next step is for the group to meet and discuss it and then we'll see where that goes from there, but currently it's got an effective date of Jan. 1, 2004. It deals with things like separate account presentation, seed money, bonuses and sales inducements, but it also has a specific requirement for MGDBs and a specific non-requirement for GMIBs, which I'll talk about. The whole idea of this was to address diversity in practice, because there is really inconsistent application, as I mentioned earlier, of FAS 97 to these products and a whole collection

of other products.

Let me go through each of the major benefits and talk about the GAAP accounting. The interesting thing and a thing of concern from my point of view, is that despite the fact that all these benefits have very similar risk profiles, as you go through this what you're going to find out is that the accounting rules for these benefits are very different. To me, that's a concern because we're telling the public different things and we're applying or not applying GAAP to this in certain ways.

Let me start with MGDBs. There's an issue paper that addresses this that says 133 doesn't apply, so you don't have to worry about that. It's because it's an identifiable insurable event. Now, under the AICPA there is a requirement for MGDB reserves, and it specifies that variable annuities with death benefits should be classified as a FAS 97 UL type contract if it has significant mortality risk. Otherwise it's classified as an investment contract. Now, it does give you ideas on how to measure significance, but it doesn't really tell you what significance is. If the contract is an investment contract, then no additional reserve above the account value is either required or allowed. If it's a UL contract, you have to hold an additional reserve if the fees for the death benefits are not fixed and guaranteed, which is usually the case, and if the fees are not proportionate to the benefits, which is also the case. The reserve is very similar to an unearned revenue type reserve in which you accumulate revenues and it's very similar to the amortization of deferred acquisition cost (DAC) in which you look at the present value of benefits over the life of the contract and you unlock from time to time. There's an example in the exposed Statement of Position.

The determination of whether the annuity has significant mortality risk is made at issue. What you do is you compare the present value of future death benefits to the present value of all future revenues from the contract. This implies that you do an average cost over a large number of stochastic scenarios, but once it's determined, you don't change it. You determine at issue and that's it. If you say it's an investment contract and then 10 years later you find out you have a lot of mortality risk, you can't put up a reserve because it's an investment contract. Because the SOP applies retroactively, there's a transition period to determine whether you have significant mortality risk. So, you're using actual information up to the date of transition and then projected future. The unfortunate thing is that in this market, if you're doing this today, you may end up with some counter-intuitive results. You may end up with a different answer for your in force versus your new contracts. So you may want to look at this carefully if you're looking at the impact of this SOP.

Here's an example. Suppose I'm evaluating a return of premium benefit. A lot of people think there's not significant mortality risk in this benefit, and when I issue it, there usually isn't. If you run a set of scenarios, say you get three basis points (bps), so you're charging 150 bps, which is 1.5 percent. Most people would say that's insignificant, but let me look at a group of contracts that I issued in 1999 and let's suppose they're 25 percent in the money with the same return of premium benefit. I'm going to get an average claim cost of 20 bps, and when I compare that to my 150 bps, I'm over 13 percent. A lot of people would say that is significant. What's happening is

that I have an in-force block that has significant mortality risk and I'm holding an additional reserve, but I'm selling this benefit going forward and I'm saying the mortality risk is insignificant for the new business. So I'm getting a different answer and it's something that's going to be very difficult to explain to the public. We're setting up this big reserve, but don't worry about this stuff we're selling now. But it's the same risk, so I think a lot of companies are going to comment on this. I know my company is, and I think my company's comment is going to be that if you have a death benefit you should be holding a reserve and if it's insignificant mortality your reserve should probably end up being close to zero.

Moving forward to GMABs and also guaranteed minimum withdrawal benefits (GMWBs), they're pretty similar. There's a DIG issue paper, B8, that says this is an embedded derivative under 133, and you have to hold an additional reserve at fair market value. Now, every embedded derivative has a host contract and the host contract is a traditional variable annuity, so you don't do anything different there. You hold a reserve equal to account value, but then you have to do a fair value calculation for the guaranteed annuity benefit or withdrawal benefit. It doesn't tell you how to do it, so it's up to us actuaries to figure out something. The bad news here is that because you're doing fair value it's going to be very volatile, but there is a source that might help with respect to this issue. There was a paper that was developed by a group called the Joint Working Group. It's an international group of accounting standard setters and on the Academy Web site there's a monograph on the fair value of insurance liabilities that contains a lot of information on this. The paper outlines a hierarchy of valuation methods that you can use. It's not a requirement. It's really more of a discussion of what constitutes a reasonable basis.

The first item in the hierarchy is market value and you do that when the markets are deep, wide and open. For GMWBs and GMABs, this doesn't exist, so this isn't a viable candidate. The second item is using the market value of similar instruments. So unless you're doing dynamic hedging and you're taking care of the lapse and mortality risk, this isn't going to be practical, but if you are doing all the hedging, that may make sense. That brings us to the third item which is the present value of estimated future cash flows. I think it is a more reasonable basis for these benefits and my guess is this is what most companies are going to be doing. The way I interpret this is you would take the present value of estimated future cash flows. You may use a large number of stochastically generated scenarios, you may use a risk-free rate, you may use current volatility or there may be a closed form solution to this, but hopefully there are people a lot smarter than me that are trying to figure this out. But, if you do the brute force modeling, the question becomes, Can you include the fees that are collected? Most people would think you could, but obviously that's something that you need to determine for yourself.

The GMIBs require you to annuitize the contract to get the benefit. DIG issue paper B25 said GMIBs are not embedded derivatives under FAS 133, unless they're net settled. Most aren't, so you don't apply fair value accounting. Now, the thing that's concerning a lot of people is that under the SOP, it tells you that you can't hold a GAAP reserve for these benefits during the deferral period, and that's because the SOP

interprets a paragraph in FAS 97 that says if you have an annuitization option you value it on a separate basis or on its own merits. Never mind that that paragraph is dealing with determining significant mortality risk. Apparently there have been other interpretations of this that say you can't hold a reserve for these benefits. So, under the SOP, if you're writing these benefits, even if you think they are well in the money, you can't hold a reserve. So a lot of companies and a lot of organizations, I think, are going to be commenting on this. I think this is going to be the one area of displeasure with this SOP.

That brings me to the guaranteed payout annuity floors. Again, paper B25 says GPAFs during the accumulation phase are not an embedded derivative for the same reason the GMIBs aren't. But during the payout phase, or if you sell a stand-alone payout variable annuity with these benefits, you do have to hold an additional reserve under certain circumstances. B25 concludes that if it's a period certain only payout, it is an embedded derivative. If it's life contingent only, it's not an embedded derivative, because it has an identifiable insurable event. However, if you have a mix, if you have period certain and life contingent payments, the contract does contain an embedded derivative, and what you're required to do is actually split out the period certain guaranteed minimum periodic payment and do a fair value on that and leave the life contingent on its own and you don't do a fair value calculation on that. So, it gets a little messy on those. You have to do that even if when you look at the payout annuity on its own there's not significant mortality. If you're writing these benefits it gets a little messy and you may want to take a closer look at these papers.

In conclusion, the accounting standards are changing and hopefully you're looking at these as you're pricing and analyzing your risks. Keep an eye out on the GAAP side, because again, you do have this diversity in practice.

**MR. ROBERT A. BROWN:** I'm going to talk about the risk-based capital part of variable annuity guarantees, and this is what we are referring to as C-3 Phase II. The American Academy of Actuaries has a subcommittee that's working on this. I chair that subcommittee. We're calling it C-3 Phase II, because we developed a recommendation a couple years ago for interest-rate risk (C-3 Phase I), in which we decided the best way to measure interest-rate risk is to actually model a lot of randomly generated interest rate scenarios and your product exhibiting the dynamics that it has. So that was for interest-sensitive products, deferred annuities, GICs and things like that.  Even though traditionally the risk in guarantees in variable annuities is not interest-rate risk, we decided it really means the risk of tracking error between assets and liabilities and that the same approach should apply here.

We're trying to finalize our recommendation in time for the December NAIC meeting, which means we are just about there. Then we will make that recommendation to the NAIC Life Risk-Based Capital working group and they will have the ball from there to expose it for public comment and to adopt something in whatever time frame seems feasible.

The scope of our recommendation is going to be all variable annuity guarantees except

for variable annuities that guarantee an index. If the variable annuity is guaranteeing that it will pay the S& P500 or that it will pay the S&P 500 plus 50 basis points or whatever, then that product is going to be covered under a different recommendation, not this one. But, all of the types of guarantees that Larry went through earlier are all the standard types of guarantees the variable annuities have, whether they are minimum death benefits, enhanced death benefits, living death benefits or a combination.

Even if somebody invents still another benefit, the general approach is the same. On the other hand, variable life generally would not be included, although if it turns out that including it increases the capital requirement, then it would be included. We think that would be an unusual thing though, because, in general, the type of guarantee that you see in a variable life policy is if you're paying at least this level of premium into your variable life policy, then the death benefit will continue at at least such a level, and usually the value of that guarantee is small compared to the mortality charges of the basic life insurance benefit. And because our recommendation, as you'll see in a minute, is to aggregate all the products that are within its scope and look at how they all come out under these various scenarios combined, and variable life almost always generates margins, so including it would reduce the capital requirements.  You may ask what's wrong with that, but if you allow that, then why not include accidental death and dismemberment benefits, which generally have good margins but have nothing to do with the stock market? Why not include every product you've got? So the intention is to scope in the products that truly do include market risks and to do it in a way in which they play off against each other as they really do. If I have some products that cost me money under my guarantees when the stock market goes up a lot, but those that are guaranteed minimum benefits are paying me revenues without costing me anything and vise versa, then that dynamic ought to be demonstrated. It should be the market scenarios that, in aggregate, are the worst for my company that need to be taken into account and quantified. So we want aggregation, but we don't want aggregation of things where there is no material risk.

The basic approach is to aggregate all these products and guarantees, see how they come out under each of many scenarios and then rank the scenario results to find out what's the very worst one, what's the next one and what's the next one. Then I'm going to take the worst 10 percent and average those and that's my capital requirement. That would be the 90 CTE. It may turn out to be a higher CTE than that. Canada used 95 CTE. The Academy may recommend 90 and the regulators may up the ante to 95. It's hard to know. The point is that the current RBC requirements have tended to be based on the 95$^{th}$ percentile. The trouble is that products of this type tend to have a lot of the risk way out in the tail. At issue, it might be that the 95$^{th}$ percentile in some of these products is zero, even though the value of the benefit isn't zero, and there is a substantial value to the benefit. But it all happens out on the worst 2 percent or something like that. CTE incorporates the whole tail. Technically, we're using a modified CTE also. In other words, if the 90$^{th}$ percentile actually showed a gain, but the 95$^{th}$ and higher had losses, I'm not allowed to offset those gains at 90 against the losses. I'd cap them (or floor them, depending on how you look at it) at zero. Now, as Tom said, that is the total amount being put aside against these guarantees. That

would include reserves and RBC. So, whatever is the final basis for reserves would be subtracted from the 90 CTE and RBC would only be the difference. People, at times, have gotten confused on that. People have seen sample factors and said, "Oh my God, that's the RBC?" and I say, "No, that's the RBC plus reserve, that's not just on top of your reserve." So it's important to understand that. What this means is that unlike almost everything else in the RBC formula, what we have here is a fully integrated approach. There is some difference between how it shows in the balance sheet. The geography issue, as Larry said, is how much shows as liability and how much is required capital. Regardless of exactly how the thing is carved up, they still work together to provide the same level of coverage. So, you don't have some of the odd effects that Tom was talking about, under which the current approach sometimes goes in the wrong direction. More frequently it just ignores reserves and doesn't look at how adequate or inadequate they are. So you can have situations where, for one product reserves are barely adequate and for another they're redundant, but you have the same capital requirements in any event.

Here we're fully integrating the two and saying first see how much you need in total, then subtract your reserve requirement and what's left is your capital requirement. Those of you who are more familiar with the RBC formula than most people probably want to also remember that rather than just adding up the various C-1, C-2, C-3 and C-4 pieces and saying here's your total capital requirement, there actually is a covariance adjustment in which different pieces are squared, summed together and then the square root of the whole thing is taken. So credit risks and stock market volatility risk, which had been combined into a single component under the radical for covariance purposes, recently got separated and became two components under the radical. So credit risk goes in C-1 other. We're saying the variable annuity guarantee RBC amount ought to be combined with C-1 common stock (CS), because for the vast majority of these products we're talking about a stock market risk very similar to the risks that you would have if you held common stocks in the general account. The basic methodology is to aggregate all products within the scope together, model them to expected financial outcomes across a large number of investment scenarios, sort the scenarios to get the worst 10 percent and then average them.

Now, this is the first time in life RBC framework except for C-3 Phase I in which the whole thing is based on modeling, and the modeling is based on assumptions. So this is a really dramatic change from handing you the formula and the factor that you take times net amount at risk or something. This is saying there's so much diversity of product, so much diversity of the kind of funds that the guarantee may be being applied to and so many different permutations and combinations that just a simple factor or table of factors will never keep up with the real world. So what we want to do is actually have the actuary who is responsible for this, model out the product, the investment results under all these scenarios, and the policyholder behavior that would be expected under those circumstances, to develop how each one of these works out. So you have investment distribution assumptions to make, and we're saying it's up to the actuary to determine the basic parameters. The actuary will determine if this is a relatively low-volatility fund with a lower expected return or this is a very hot fund with lots of volatility and a high expected return. How I set the parameters and how I group

my funds into categories is up to the actuary. It has to be documented and it has to be supportable, but we're not in a position to give a general rulebook for that. Obviously all this stuff is subject to the relevant Actuarial Standards of Practice.

One thing we will do, though, is something that the Canadian Institute of Actuaries (CIA) got to first. We had been kind of worrying about this, but only in kind of a general way. If you do what you might call the obvious thing, which is to do an independent lognormal best fit to historical data and then look at what kind of tails you get, such as what the $99^{th}$ or $95^{th}$ percentile looks like, and compare it to the empirical results that you take over similar periods and rank them, consistently you find that the empirical tails are somewhat fatter than the tails that you get from the lognormal model. It's the easiest kind of curve setting to do. It's kind of the obvious thing to do. People often say it's the way Black-Scholes pricing works, which I think is sort of a half-truth, but in any event it's an inviting mistake to make. We decided we need to do something that says when you are all done, the tails have to come out at least this fat. If they don't, then you need to fiddle with the parameters of your model until they do, whether that's through increasing the standard deviation, changing the model or whatever it takes to get the formula to fatten out the tails, because it's the tail risk that is the risk that we're trying to model here. So we're saying we're not going to tell you how to classify your funds. We're not going to tell you exactly what the right mean or standard deviation is or whether it should be independent lognormal or regime-switching lognormal or whatever, but when you're all done, you need to test against the calibration standard to make sure your tails are fat enough. If not, then you have to do something to make them fat.

As for other assumptions, and obviously these products are loaded with them, mortality, expense and lapse rate are three obvious ones that effect almost all of these products, the actuary has the responsibility to make a prudent best estimate of what those would be under these particular scenarios. Prudent best estimate basically means that for products with good solid statistical experience, such as variable annuity mortality, the confidence interval grows narrow, and I can pick the conservative end of the confidence interval, but it still can be pretty close to observed results. For other assumptions where I really have only the most general of ideas, you have to make an assumption that is reasonable. For instance, how many people will annuitize on these GMIBs once they're in a position to do so if it's in the money? Well, probably none of them are through their seven- or 10-year waiting period yet, or if any are, very few are, so you would assume more people would annuitize if it's in the money than if it's out of the money. But the fact is, you need to leave a good deal of margin in there until experience unfolds, because nobody really knows the answer to that question.

As experience emerges, part of the actuary's responsibility is to continue to monitor that experience to compare it to what's currently in the model, and to the degree that they're different positively or negatively, to refine the assumptions that are used to drive the model going forward. You could say this approach is not that different than cash-flow testing, asset-adequacy analysis and that sort of thing. What's different is that the approach is now being brought to bear on the RBC requirements, and that's pretty new.

An important question here, and one that's particularly current today, is what do you do if you're hedging? We feel the answer is that if what you're doing is some sort of a hedge program, whether it's a dynamic hedge or something that's replicating out of the money option rather than the in the money option or whatever, you need to reflect that in your modeling in the best way that you can  and in your RBC calculation. That's an important part of tail risk and it certainly shouldn't be left out. On the other hand, if some of the hedged risks cannot be directly modeled, allowance must be made for imperfections of the hedge (i.e. less than full credit taken). It needs to be done in a way that is realistic. Most approaches to hedging these guarantees are not perfect. For example, most of the funds being wrapped by death benefit guarantees or income guarantees are probably not indexed, but in general, the hedging that you're going to do is going to pay off based on the behavior of some index. So, even if you've done a good job with some mixture of indices that does the best overall job of correlating with what you are actually exposed to, it's not going to be perfect. There's going to be residual risk even if you're following a program that would give you an absolutely perfect result if the only thing that you were hedging was an S&P 500 type index fund.

Another thing is if I'm using dynamic hedging with futures, there are times that I can't do a futures trade, or where trading is suspended because of a big market move. Yet my program would probably say that is when I should be selling more futures and, in fact, I may be able to do so after the market is "gapped." So, that needs to be reflected through reducing the hedge credit in some manner. This can be done by haircutting the credit given for the hedge. The point is if that risk is there, it needs to be recognized in developing the impact of the hedge on the capital requirement.

Similar kinds of comments apply to reinsurance. Some reinsurance is dollar for dollar and either 100 percent of the risk is reinsured or 75 percent is reinsured or something, in which case that's easy. But if the reinsurance has deductibles or has caps or something like that, then that also needs to be taken into account by either being picked up directly in the modeling or through some calculation off line about what the features do in terms of reducing the offsets out on the tails. You've got to remember this is tail risk, which is unlike liability values or even the asset adequacy. We're talking about measuring tail risk here. We're talking about 90th percentile and worse, so these little things that are good, but not perfect actually tend to get magnified when you're out on the tail like that.

What's different here? It's quite different from anything else in RBC. The actuary has a lot more responsibility than in most of the other places in RBC. In general, it requires modeling. Our recommendation is going to provide an exemption from modeling in one particular circumstance, but aside from that, modeling is the only way if you've got this business on the books. So getting the model in place, setting up the assumptions, deciding how to group your in force and your funds so that you don't have to run every single contract you've got is all up to the actuary. It all has to be tested against the standard so that the way it's done does not distort the result in a way that understates the capital requirement. The regulation is specifying the goals, the approach and some constraints on the investment assumptions, but beyond that it's up to the actuary to

do it right. So it's all about actuarial responsibility, certification and disclosure, rather than some formula, and we think this is the only way that this product can really be analyzed for RBC purposes appropriately. We think it's a good direction to follow for other types of products in the future as well. Also, as I mentioned before, in this case the reserve and capital are fully integrated, and that's new as well.

We have the impression that there are a lot of variable annuity writers that have small or medium amounts of death benefit coverage and have no living benefit coverage on their books, and death benefit coverage seems to be a little bit less sensitive to all kinds of product variations. There seem to be fewer permutations and combinations, so we felt it would make practical sense for companies that just had that product to have an alternative to doing their own modeling. So what we're going to be recommending is that there be a table of factors that are permissible for a company like that to use. It's fine if they want to do that instead of modeling, or they may choose to do modeling, but if they start modeling, then they lose the option of using the factors. You can't go back and forth. Once you bite the bullet, you bite the bullet. Once you've built the model, use the model.

The table of factors approach means you don't get the benefit of any synergies of aggregation of the book of business. It would look at each cell as though that's the only cell you've got. Because of that, it tends to give us somewhat higher capital requirements. It will also be based on assumptions for things like permanent lapse rates and the like that tend to be on the conservative end of the ranges that are possible. The lapse assumptions have a lot to do with how the business is produced, the average size of the policy and things like that, so these would tend to be relatively lower lapse assumptions, which might be suitable for some companies and might be much too low for others. A company would probably end up with a lower RBC requirement, or certainly not a higher one, by doing the modeling. A company would also certainly have a lot better understanding of their book of business and would be able to reflect hedges, which you probably wouldn't get with using just factors, or at least it would be harder.

We wanted to give companies like that at least a little time to do their model building, even though in the long run we think those with significant amounts would want to do model building. We don't know any way that we feel comfortable with doing that for living benefits though, and so for living benefits our proposal is to do modeling. That's the only way we can see to get a reasonable answer. We know that there are only a few dozen companies selling those benefits. We think that mostly they tend to be large, relatively sophisticated companies. We hope that they're already doing modeling, but if not, now would probably be a good time to start. If you have both types of benefits you can still use the factors on your death benefit business, but the products that have living benefits must be modeled. You can probably lose even more aggregation benefit under those circumstances.

We're not going to tell people how to do the fund calibration; we're going to tell them how to tell if the tail is fat enough. We're not going to say here is the model you should use. We're not going to say you must use regime switching. There are a lot of

proprietary models that take a number of economic variables into account and play them off together, and we're certainly not going to say you can't use one for RBC even though you're using it for all other aspects of evaluating your business. All we're saying is you have to compare your model results, whatever they are, to these tail fatness parameters and you have to document and be prepared to support the assumptions that you've got in there in terms of expected return, correlations and all that.

We're not going to tell companies what they must assume about the relationship between interest rates and stock performance, although we are going to say that it's okay to assume independence. There are people whose models don't assume independence and we're not going to outlaw that, but it requires support if you do that. Interest rates are important here for two reasons. With the GMIBs, the purchase rate that's in there may have a lot of margin in it if interest rates are high at the time the contract becomes annuitizable, but it may not have much margin in it if interest rates are low at that point in time. So in addition to the larger risk of what the stock market does, you also need to care some about what interest rates are at the time. Right now we have a situation where the stock market has not done well and interest rates are low, which is the worst possible combination. On the other hand, nobody had a position to annuitize yet, so that's good news, I guess. Interest rate risk in that GMIB is the first reason why the rates are important.

The other place that interest rates come into play is in the metric. We're actually saying that when you do these stochastic scenarios, you do it year-by-year and find out where you stand at the end of each year. You then discount each year back to today and the worst loss position on a present value basis of any of those numbers through the whole projection is the capital requirement that goes with that one scenario. Given that, what interest rate you discount back becomes very important. So what we're saying there is if you do have a multivariable scenario generator, generating book interest rates each year as well as all this other stuff, you may use those rates to discount back at basically the one-year rate each year. So you don't have to worry about capital gains and losses on the long bonds that you liquidate three years later and stuff like that.

If you don't have it though, and we think that many companies don't have and won't have, you can instead use the forward rates implied by the swap curve and say we will assume those are the year-by-year rates. Of course, in all instances, you're talking about 65 percent of those rates, because all of these numbers have to reflect how much you get to keep after tax. So right now this means you have relatively low discount rates, bringing these losses back to the time zero. But let's face it, right now if you put that reserve money in the bank, it's going to earn a relatively low amount of interest, so that seems right.

In terms of how interest rates correlate with stock performance, we're saying if you're going to do that, you have to be prepared to prove it. We're not going to say this assumption is allowed, this assumption is not allowed or here's what we think the correlation is. Again, as I had mentioned before, hedge imperfections need to be

reflected, but we're not going to tell people how to put a metric on that. It depends on the way the hedge is done and we think there are a number of good ways to do it.

I want to talk about the process for adopting these rules. I think that it sometimes doesn't get a lot of emphasis, but because we're getting fairly close to something happening, I think it's important for people to understand that. The Academy has the responsibility to make a recommendation to the NAIC at their summer meeting. Then the NAIC working group will expose that recommendation for comments from industry, other regulators, other actuaries and whoever has a view on it. At the March meeting, they may decide to adopt something, and if they do, they have the ability to make that something effective for Dec. 31, 2003. It's too late for any of this to be effective in 2002, so we don't have to worry about that, but 2003 is possible, although it means that things have to move along very quickly. The process is a little faster than some things, but it still requires some time. Anyway, December 31, 2003, has been the target for quite some time. It is still possible. It's a little hard to know whether it will really happen in that timeframe or not. Tom mentioned reserves could be effective in that timeframe as well. Reserve tends to be harder to make move quite as rapidly, and because we're talking about calculating the whole thing and then subtracting reserve, if reserves don't get put on a revised basis until a year later, at least adequate money is being put aside somewhere in the interim.

**MR. JIM DALLAS:** I'm with Tillinghast. Bob, I had some questions about the calibration parameters, and would like a little more detail about that. I guess I'm picturing somebody who is going to invest in software or staffing to do all this modeling. Are you saying with the calibration parameters, if I do all that and I come up with losses at the 98th percentile, does the calibration parameter say you should have gotten them at the 95th, so you need to adjust it?

**MR. BROWN:** We know how the Canadians did their calibration parameters. We have a proposal that we're going to be discussing on a somewhat different approach to the American calibration. The one that I say has a pretty good chance of surviving says I run my stochastic generator, I calculate the standard deviation of the data points I get using the normal formula for standard deviation and then I look at how many standard deviations out the first percentile and the 99th percentile and various other points are. If they aren't at least this, then you need to do something so that they will be. There are a variety of things you can do, such as numerical techniques to pack more data points in the tail or tweaking the standard deviation that's used by the generator. All it's trying to do is to make sure that you don't have tails as lean as an independent lognormal, but that you have tails more consistent with empirical experience.

**MR. DALLAS:** Are those parameters all calculated or determined prehedging or prereinsurance?

**MR. BROWN:** Yes.

**FROM THE FLOOR:** What happens when you do incorporate reinsurance and hedging? Do those parameters then get modified?

**MR. BROWN:** You have to model the hedge the way the hedge really works. So basically, if I'm modeling a hedge, unless it's really like a perfect hedge, I have to model in some manner what the fund is doing and what the hedge is doing and how they come together. So if the hedge is to hold a constant position in S&P 500 futures, for example, then I want to be sure that that hedge exhibited the same tail behavior and fit my underlying fund as well, but they might not. If my funds tend to be high beta funds, and tend to have a higher mean and a higher standard deviation, then I wouldn't get an exact offset, but in both instances I'd have tails at least as fat.

**MR. TIM RUARK:** I'm with Ruark Insurance Advisors. My company has done some valuation work probably a dozen times in the old MMMM before that got heavily revised this summer, and one thing that I found really useful that I didn't hear about this morning was the concept of representative scenarios. Under that concept you still have to do stochastic testing, but you do it for a sample of contracts, convincing yourself that you can choose just a handful of scenarios and then run your whole valuation on a seriatim technique. So, I'm just looking for Bob to tell me that he just forgot that and it's still going to be in.

**MR. BROWN:** I'm glad you mentioned it Tim, because if I run 10,000 scenarios on 20,000 policies, I'm going to be really busy and my computer's not going to get done by end of quarter and it's going to be a problem. You've got to find some ways to cut through that, and one of them is representative scenarios, which require a lot of work up front, but allow me to do seriatim testing and not have to do 10,000 trials. Another approach is to do smart grouping so that I can do 10,000 trials , but I don't have to do it for each of these contracts. Both of those require testing. We think either of them works, and I agree that we need to be sure to mention that as a viable technique.

**MR. DAVE INGRAM:** I'm with Milliman USA. One of the criteria that I think I understand that the banking regulators use before allowing banks to use their own models for capital requirements is that they have to be something that the bank is relying on for other business reasons. Has anybody given any thought to that being a criterion in these models?

**MR. GORSKI:** The answer is no. I surely haven't thought of that, but what we have thought about is how we're going to audit the work of the actuary either for reserving purposes or RBC purposes. In Illinois we're actually developing our own cash flow modeling routines using stochastic models for both the equity process and interest-rate process. We would be going to a company, giving them what's called a model office, have them model that on their system, compare it to our system and see how close we get. We have not gone through the steps you suggested though, but I imagine that to the extent we regularly start getting more involved in the risk-assessment process at the company level, that we may start asking questions like you suggested. Why is the model you are using for risk management purposes different than the model you're using over for reserves and RBC? I think when we expand our universe to get into risk-management practices, that's probably the direction we'd be going.

**MR. CAMPBELL:** I think partly that kind of thing is a regulatory issue, not something that the Academy would necessarily be coming forward with. I do know that my group has a very strong feeling that, particularly for guaranteed living benefits, we don't think there is any decent way to get a capital requirement except this one. Although you'd like to think the companies have been doing that modeling anyway for pricing, reserving and cash flow testing, if not, we still think they ought to start doing it now and use it for capital because we think that's the only way you can get even reasonably close. So the issues about audit and the issues around how you get into it in the first place are certainly important ones, but it's certainly important to have factors that are based on some semblance of realistic assumptions and of the actual product characteristics, rather than just a little table of factors, such as 1 percent or 2 percent, like we have right now.

**MR. JOE TAN:** I'm with National Actuarial Network. I have a question concerning the use of the CTE concept. My question relates to the fact that if the 90 percent CTE is adopted for RBC purposes and models are built, would it be natural for the minimum reserve to be set at 75 or 80 percent CTE?

**MR. CAMPBELL:** Actually, part of my remarks are to mention that this was an approach that's being explored for reserves and it would use a lower CTE. I think the initial numbers that were being thrown out were 60 to 65. The other thing it does is it's almost a natural extension of asset adequacy analysis. If you're doing scenarios and you're basing reserves on the 60 CTE, the question is, What's left to do for asset adequacy analysis? It's almost like using an asset adequacy analysis technique to come up with the reserves.

**MR. JOHN WEUM:** I'm with American Express. I would like a clarification on the modified CTE. Are those scenarios of gains excluded from the average or assumed to be zero?

**MR. BROWN:** They're assumed to be zero.

**MR. WEUM:** And the assumption would be the same approach to both capital and reserves? My second question is will there be guidance around modeling assumptions as far as required levels of conservatism with election assumptions?

**MR. BROWN:** Not from the Academy.

**MR. GORSKI:** I do have a question for probably both of you and it's more from an implementation side. One of my disappointments a couple of years ago was when the C-3 Phase I project was scaled back from the original Academy recommendation. For those who didn't follow that, the original Academy recommendation would have applied to all companies writing products covered by the scope of the project, and it was scaled back for various industry/regulatory reasons. Do you see that type of dynamic appearing in the process once you make your recommendation to the NAIC?

**MR. CAMPBELL:** Well, we didn't really know it was going to happen in Phase I. It's not

really obvious to us how it would work in Phase II, particularly with what you would use as the default for your VAGLBs. Also it appears, although you can't tell it for sure from your statistics, that at least most of the companies writing VAGLBs probably have quite a lot of it on the books. So it would appear that the idea of exempting those companies would seem to be something that would probably not be that easy to argue for. And for companies that only have death benefit guarantees, we are providing a simplified way to do it that doesn't require scenarios and that is definitely because a lot of the concern in Phase I is that there are a lot of companies that are going to have to run a lot of scenarios and it's all this work and it seems like for many of them it would be unnecessary. Here we're saying that the fallback would actually be available to variable-annuity writers that don't have VAGLBs or those that do have VAGLBs except for the VAGLBs. So, we think that the argument for why there's a need for exemption might be a much harder one to make, but we've been surprised before.

**MR. ROD BUBKE:** I'm with FBL Financial Group. I appreciate the option of using factors rather than modeling if all you have is a simplified GMDB, which would apply to us. My question is if reserves go to modeling, would there be a similar option for reserves or how would reserves be calculated?

**MR. CAMPBELL:** I don't know. It remains to be seen. At this point a lot of focus is on the RBC, and so the reserve piece is probably more of a concept. The Life Risk-Based Capital Task Force is working on this. On the reserve side it would go to another NAIC group. For instance, Larry currently sits on both that group and the Life Health Actuarial Task Force, which would work on reserves, and there is some overlap and obviously members of LHATF are looking at this very closely, but that's something that just remains to be seen.

**FROM THE FLOOR:** Would it be possible that Actuarial Guideline 34 could live on for companies?

**MR. CAMPBELL:** Yes, I think that is a viable alternative. There may not be a similar viable alternative on the living benefit side.