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VARIABLE PRODUCTS

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Panelists will examine product features (for example, guaranteed minimum death benefits), reserving practices, and surplus management issues surrounding variable products.

MR. TIMOTHY J. RUARK: We will focus more on variable annuities than variable life. I have been to a handful of meetings over the last couple of years, where audience members have requested more information on variable annuity reserving, specifically reserving for the minimum death benefit. Recent meetings have been light on that topic, and we're going to make up for that.

The panelists and I have participated as members of both a SOA group and an AAA group on the subject of reserving for the minimum death benefits. We'll report on the progress of those groups.

One of the things that the SOA group did this summer was send out a survey to many companies that write variable annuities to get an idea of what some of their current practices are regarding variable annuities. We will touch on some of the results of the survey.

Tom Campbell is going to be our first speaker. He's going to talk about some of the current practices in reserving on variable products. Again, the real focus will be on variable annuities. Tom is with ITT Hartford. He is a corporate actuary and works on asset-adequacy testing, financial analysis, GAAP, and statutory reserving. He has also had opportunities to be on several industry committees. In addition to the ones I already mentioned, he is on the Academy's Task Force on Annuity Valuation, so he has a good working knowledge of some of the topics we're going to talk about.

Our second speaker is Steve Preston. Steve is a senior vice-president, chief actuary and controller for Golden American Life Insurance Company. He specializes in variable products. He also has a great deal of knowledge and interest in the topics that we're talking about. Prior to the past two years at Golden American, Steve spent six years as vice president and actuary with United Pacific Life where he held various actuarial positions.

MR. THOMAS A. CAMPBELL: I'm going to discuss some of the current practices in the variable annuity marketplace. My comments will center around two topics: base reserving for variable annuities and minimum guaranteed death benefits (MGDBs). On the latter topic, I'll address what's out there with respect to benefit types and features, as well as the current reserving practices. My remarks will include some of the results of the MGDB survey that Tim mentioned earlier.

Let's start with variable annuity reserving. I'll address three of the many items that need to be considered in the development of variable annuity reserves and will

comment on how they are currently being handled in the marketplace. First is the method; specifically, does the Commissioner's Annuity Reserve Valuation Method (CARVM) apply to variable annuities, and if it does, what results are companies getting? Second, what interest rates are being used both for accumulation and valuation rates? Third, what is Actuarial Guideline XXXIII (GGG), and what are companies doing with it?

The first consideration in the development of reserves for variable annuities is the reserve method itself. Unfortunately, there is not much regulatory guidance in this area. As a result, industry practice varies. One regulatory guide is the NAIC Model Variable Annuity Regulation, which states that the reserves "shall be established pursuant to the requirements of the Standard Valuation Law (SVL)," and "recognize the variable nature of the benefits provided and any mortality guarantees." This could be interpreted to mean that since CARVM applies to fixed annuities from the SVL, then it should also apply to variable annuities. However, when applying CARVM, you should take into consideration the variable nature of the products.

In fact, this is an interpretation that's consistent with the AAA's CARVM white paper. This was written in 1991 by a working group of the Academy's Committee on Life Insurance. This paper also gives suggestions on ways that this interpretation can be implemented. More recently, reserves have received a great deal of interest at both the Academy and the NAIC level. This is something that Steve is going to comment on later.

Let's look at some of the current practices. The MGDB survey included a section that covered base reserves for variable annuities. In it, more than half of the respondents indicated they use CARVM, and the majority of those said they use continuous CARVM as opposed to curtable. The remainder of the respondents are split about 50/50 between holding account value and cash surrender value.

The question of continuous versus curtable CARVM is an ongoing issue and I think the choice varies by states. Looking at the regulations, the model SVL clearly defines CARVM as curtable. The only state that has a continuous CARVM requirement in a regulation, that I'm aware of, is New York. There may be other states, however, that are enforcing continuous CARVM through either letters or bulletins. So if you are reserving for variable annuities using CARVM, you need to be aware of these state variations—particularly for your opinions on minimum reserve standards.

The survey also asked what companies obtain when they applied CARVM to variable annuities. We found that most companies have reserves that were equal to, or slightly greater than, cash surrender values. There are three reasons why reserves exceeded cash surrender value. The first is cliff surrender charges. This is where the surrender charge drops by more than 1% in any given year. One company that responded had a cliff as high as 5%. Second is recognition of free withdrawals, which is a withdrawal where the surrender charges are waived. The third reason is because of guaranteed annuitizations, especially those where surrender charges are waived on annuitization.

A second key consideration in variable annuity reserving is the valuation and accumulation rates that are used. According to the survey, the type A annuity rate is the most

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popular valuation rate for variable annuities. We also found that both type C and, for one or two companies, type B are being used.

For accumulation rates, most companies indicated they use a rate equal to the valuation rate less a spread, which was made up of mortality and expense charges, administrative fees, or investment advisory fees. This approach is consistent with the AAA white paper that I mentioned earlier.

A small number of the responding companies use an accumulation rate equal to the interest rate they guarantee to the fixed-account option of the variable annuity, while at least one respondent accumulates at 0% interest.

I think the thing that's most important here is not necessarily the rates themselves, but rather the spread between the accumulation and the valuation rate. This ultimately represents the margin that is available to fund the increase in reserves due to changes in the surrender charge or any other reason. This is why companies have CARVM reserves that are greater than cash surrender value.

The third consideration of variable annuity reserving I'd like to comment on is GGG. This was adopted by the NAIC late in 1994, and effective in 1995. It applies to contracts issued in or after 1981. As with other actuarial guidelines, GGG is an interpretation of an existing regulation—in this case, the SVL. States are not required to accept GGG, but they generally do. GGG requires companies to value all guaranteed-benefit streams when applying CARVM. It specifically includes annuitization, but it also applies to any other guaranteed benefit in the contract.

According to the survey, most companies are considering the impact that GGG will have on their reserves and are looking at annuitizations in their CARVM calculation. Most companies, however, indicated that they believe it will have little impact on their reserve levels.

To summarize my comments on variable annuity reserving, I'd say most companies are using CARVM and getting something close to, but not necessarily equal to, cash surrender value. Most companies are using a type A annuity valuation rate and are reducing the valuation rate by a spread to determine the accumulation rate. Finally, most are incorporating GGG into their reserve calculation. Steve will comment later in this session on recent developments in this area. In particular, he's going to talk about some of the recent discussions involving GGG.

The second topic I'd like to discuss is current practices involving MGDBs for variable annuities. We have seen an increase in both the offering and the richness of these benefits, which guarantee that the death benefit will never fall below a given level, regardless of how the underlying funds perform. Since fund performance tends to be something that's difficult to predict, especially in the short term, these benefits tend to be somewhat uncertain and somewhat volatile. With the recent increase of these benefits in the marketplace, we're seeing an increase in the scrutiny that regulators are putting on this product. In particular, the states are concerned about the reserve levels that companies are holding.

In order to give you some background into this issue, I'll first discuss the origins of MGDBs. Then I'll discuss the benefit types and some of the variations within those types. I'll talk about the determination and the application of policy charges, and finally I'll discuss reserve practices. Once again, my remarks will include some of the results of the survey.

First, the origins. MGDB benefits have been around since the 1960s, when companies offered either a waiver of surrender charge or a return of premium on death. In the late 1980s, we saw that these benefits started to increase in popularity, and that was for three reasons. First, companies were looking to increase their persistency. By offering a death benefit equal to the account value on the date when the surrender charges wore off, a company was able to offer contractholders some added value to help keep them with the company. Second, companies offered MGDBs to differentiate their products, since most variable annuities look alike. We are now seeing this happen in the marketplace: as competition is heating up, companies are getting more and more aggressive in what they're offering for MGDBs. The third reason was the availability of a competitive reinsurance market where companies could offer these benefits and limit their exposure.

This leads us to the types of benefits that are currently being offered. There are five different types, and then there are combinations on those five types. Most companies will offer the greater of the account value and these benefits. I mentioned the first two; they're just like their names imply. With a waiver of surrender charge benefit, a company will waive the surrender charge and pay out the account value. On a return of premium benefit, a company will guarantee a minimum of a return of premium with no interest, adjusted for any withdrawals that take place.

A third type of MGDB is the reset, which guarantees the death benefit will be adjusted, either up or down, to become the current account value every x years as defined in the contract. I mentioned earlier that originally the x corresponded to the surrender charge period. Now companies reset as frequently as annually. As with the first two types, the death benefit is adjusted for subsequent premiums and withdrawals between resets.

The fourth type is a ratchet. This is just like the reset, except the death benefit will only decrease for withdrawals. In other words, with a ratchet benefit, the death benefit will either go up or stay the same.

The fifth type is a roll-up. A roll-up guarantees that the death benefit will increase by a given rate each year, regardless of what happens to the account value. Some roll-ups are based on simple interest, others are based on compound interest. As with the other benefits, the adjustments are made to reflect subsequent premiums and withdrawals.

These are the five types. I also said there are combinations. One example of that would be the greater of a five-year reset and a 3% roll-up.

With five different benefit types and combinations, things get a little complicated from the standpoint of both assessing the risk and determining reserve methods that cover everything. However, things get even more complicated when you consider some of the variations within a given benefit type. The survey gave us some information on six

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of the many variations that can affect a company's risk and ultimately impact both the cost and the reserve of the benefits.

According to the survey, companies have ratchet and reset time frames that vary from one to seven years, and they offer roll-up rates that vary from 3% to 7%. A death benefit that resets every year is going to have more risk than one that resets every seven, just as a 7% roll-up is riskier than a 3%.

Another variation involves companies putting limits on the increase to the MGDB. The most popular are age limits that either reduce or freeze a death benefit once a contractowner hits a certain age. Another limit is a cap, such as a 200% of premium limit on the death benefit. This variation can have quite an impact on price. This is particularly true with the age limit, when you consider the high mortality cost at the older ages.

The survey also indicated that some companies pay the death benefit on the death of the contractowner, some on the death of the annuitant, and then there were some companies that paid on the death of either. If a company is paying on the death of either, it is taking on more risk because it's possible for the contract owner to be different from the annuitant.

Another variation is the date used to determine the benefit. Most companies use the date when the proof of death is received as opposed to the date of death itself. Here the longer the time period a company allows the death benefit to increase, the more risk it is taking on.

The final variation I'll comment on is the treatment of withdrawal. I mentioned that the death benefits are normally adjusted for withdrawals. How they are adjusted is something that can have a substantial impact on the risk, and therefore, on the price and the reserve. Most companies use a dollar-for-dollar offset as opposed to a pro rata offset. Those companies in the first category are taking on more risk and can potentially be selected against.

An example of this is a contractholder who has a death benefit that's slightly greater than the account value. If the contractholder is going to surrender the contract, he can select against the dollar-for-dollar offset company by taking all but a small amount of the account value. What the contractholder is left with is essentially a paid-up life insurance contract at a minimal cost. If you did that on a pro rata offset company, the death benefit would virtually disappear.

Looking at all of these variations, you can see that they are all in the company's control, because they are all in the contract. However, if they're not properly handled, they can have as much impact on the price and the reserve as the mix of funds and the age mix of the contracts.

Let's look at contract charges. The survey gave us a large amount of information on how contract charges are determined and applied. Concerning how they're determined, most companies use a Monte Carlo or some other stochastic method to evaluate and quantify the MGDB risk. One company, however, said that they rely on reinsurer pricing. There was also uniformity in the application of charges. Almost all of the

responding companies indicated that the charges for the benefits are implicit in the mortality and expense (M&E) charges. Only one company said it uses an explicit charge.

The survey asked about all the variations in price by benefit type and provision. However, it showed that only about one-third of the companies actually have charges that vary by the death benefit provision. None of the responding companies use charges that vary by fund type or age.

The last topic on MGDBs is reserving. As with the base reserve, there is quite a bit of difference between companies. Unfortunately, there's also not much regulatory guidance. I mentioned the model variable annuity regulation tells you to recognize mortality guarantees when you set the reserve—but it doesn't tell you how to do it. However, there are two examples of regulatory guidance out there. First, New York Regulation 47 requires an accumulation-type reserve with a reasonable maximum target that should be held in the general account. Second, Connecticut sent out a letter November 1994 that requires a one-year term reserve, assuming a one-third drop in account value, using life mortality and interest. I think that letter attracted many people's attention, and I think it was part of the reason why this whole thing got rolling with our Academy group. The letter also required mirror reserving for reinsurance and a clarification of the method companies use in the actuarial opinion memorandum.

Let's once again look at the survey to see how companies are currently reserving for these death benefits. The most popular method is a prospective method. This is generally a one-year term reserve on the net amount of risk, assuming a drop in the current account value. Most of the companies use a one-third drop because of regulatory requirements. The next popular is a retrospective type reserve. This is an accumulation of risk premium, which is generally expressed as a percentage of account value, with some reduction for claims. Most companies are using a Monte Carlo simulation or another type of stochastic approach to determine the risk premium.

A few companies said they are using some combination of the retrospective and prospective method either using a maximum or some type of weighted average. Unfortunately, two companies indicated they didn't think any reserves are required. Hopefully, that is in their case, and not in general. The survey also indicated the mortality table used is generally the 1983 Individual Annuitant Mortality (IAM) table or, when it is required by states, 1980 CSO. Also the valuation rate varies considerably—from a low of 3%, up to life insurance valuation rates, and as high as annuity valuation rates. Finally, everyone that responded to the survey holds the MGDB reserve in the general account. As I said, there are many different approaches here, and Steve will comment on the work that has been done to try to get this to be more uniform.

In conclusion, there's been quite an increase in MGDBs being offered in the marketplace. Companies are becoming more and more aggressive in the richness of the benefits they're offering. This has caused the regulators much concern, particularly regarding the reserves that companies are holding. What used to be a minor benefit, that not too many people cared about, has suddenly received a great deal of attention—and I don't think that this attention is going to diminish. Since there is a lack of clear regulatory direction, there's going to be a lot of discussion over the next

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several months, and standards that we're all going to have to live with are going to be set. It's clear that we're going to need input from both the insurance industry and from actuaries in general to make sure that these standards are both fair and adequate. I hope that as many of you as possible can become involved in this process.

Now I'm going to turn the podium over to Steve, who's going to talk about recent developments.

MR. STEPHEN J. PRESTON: Tom's discussion focused on developments over the last several years in the variable annuity area. My discussion will focus on recent developments in variable annuities.

There are four areas that I'd like to address in my discussion. First, I'll summarize some of the work that the Academy Task Force on Annuity Valuation has been doing on variable annuities. Second, as Tom mentioned, there is a lot of work going on at the SOA, the AAA and the NAIC, in the area of minimum guaranteed death benefits. Thirdly, there has been some recent interpretations of guideline GGG, which could impact both fixed and variable annuities, and I'll touch on those. Finally, I'll discuss a couple of issues related to separate account surplus.

I would like to add that some of the issues that I'll be talking about are really preliminary findings and some of the issues haven't even been resolved at this point. Nonetheless, I think it's worthwhile to give you an update on where these committees are at this point in time.

Now, let's move on to my first topic, variable annuity reserves. As some of you might know, there's an Academy task force that has been put together to look at possible changes to CARVM. And it's a very broad, comprehensive project sweeping in all types of annuities. And while many of the issues are still unresolved, I'll give you a quick preview of some of the variable annuity issues being addressed.

I think the biggest issue is that variable annuities would be subject to CARVM. As Tom pointed out, there's a question as to whether variable annuities even apply to CARVM. In general, CARVM applies to future guaranteed benefits. As a result, some believe that the current cash surrender value should be the reserve, since it is the only guaranteed benefit in a variable annuity contract. However, there are some implied guarantees in most variable annuity contracts that need to be considered in the CARVM calculation. For example, the surrender charge is guaranteed to be reduced, if the contract persists. Also, annuitization options are often guaranteed and those need to be looked at. Also, if there are MGDBs in excess of the surrender value, extra reserves may need to be held. Also, most variable products allow transfers between variable funds and between fixed and variable funds. The actuary does need to consider potential transfers and any underlying contractual guarantees that would be provided if the transfer actually occurred. In this regard, contractual guarantees would include the charge or fee structure in the contract or any contractually guaranteed interest rates or benefits. We believe it would exclude any current fixed-rate offerings that are not in the contract. Also you should look at any transfer restrictions that are in the contract, which would reduce the company's risk. Finally, continuous CARVM would likely be required in the new CARVM. And that would certainly apply to variable as well as fixed products.

The second area that seems to be getting a lot of attention in some of the task force discussions center around a topic that is referred to as the variable annuity CARVM spread. As Tom mentioned, you normally start out with the valuation rate, then subtract the "CARVM spread," to get a proxy for an accumulation rate, since there's no guaranteed accumulation rate. We've had many discussions on what should be included in this CARVM spread. First, it seems clear that any asset-based fees which are guaranteed in the contract should be included, like mortality and expense risk charges.

Another potential component of the CARVM spread which may be included to some degree is investment advisory or fund-based fees. Those are typically netted against fund-based expenses. Right now that's an open issue. What's being discussed is what degree they should be included. Another open issue being discussed is whether the CARVM spread should be gross or net of some provision for company administrative cost.

Finally, on the fixed annuity side in the new proposal, there is a 150 basis point cap on this CARVM spread. The reason for this cap is mostly to handle cliff surrender charges. For variable products, the CARVM spreads are locked in; therefore, the task force committee is leaning toward not requiring this cap for variable annuities. However, if the variable annuity has a fixed-account option, the cap would apply to that fixed-account option.

The second topic that I wanted to talk about is MGDB. As Tim mentioned, there have been a couple of groups that have formed here, and some of this has already been discussed. The SOA group was formed about a year ago to look at MGDBs. Then, in the winter of 1995, the separate accounts working group, which is under the NAIC, requested that the Academy build a framework for a GGG on MGDBs for variable annuities. As a result, the Academy of Actuaries formed a work group in the summer of 1995, and they essentially continued some of the work that the Society task force had already started, completing a preliminary report to the NAIC on reserving for variable annuity MGDBs in September 1995.

I'll discuss some highlights of the preliminary report that was sent to the separate accounts working group.

The first task that our work group accomplished was to come up with some guiding principles for the MGDB reserve. First, the reserve should bear a reasonable relationship to the underlying risks. Also, reserves should reflect contract provisions, the demographics of covered lives, fund characteristics, current amount at risk levels, and reinsurance. All these things seem fairly obvious, but if you think through some of the current approaches that Tom discussed, most of them do not follow these principles in some way or another.

We also felt that the reserve should cover both short- and long-term risks. The short-term risk addresses fund volatility, or the chance of a sudden drop in the underlying funds. The long-term risk addresses fund volatility or underperformance in the long run, relative to the policy guarantees. Also, the reserve should avoid sharp fluctuations from year to year. And the reserve should achieve reasonable simplicity to implement and audit.

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Our next step was to try to come up with a traditional type of deterministic reserve formula that would meet the guiding principles. Since these products have significant variations in the underlying risk profile, we concluded that a reserve with two components was appropriate.

The first component, prospective in nature, would cover the short-term risks that we referred to earlier. The second component, a retrospective reserve, would cover the long-term risks. This seemed appropriate since most MGDBs have both types of risks to some degree.

The prospective component would be a one-year term reserve. This differs from approaches that are currently being used because it would have a drop in each underlying fund. There would also be drop factors that would be based on historical standard deviations by fund class. This means that, in general, the more volatile the fund type, the bigger the drop you'd have to assume. If you had a money market fund, you'd have to assume a fairly small drop; whereas, if you had an aggressive equity fund, you'd have to assume a fairly substantial drop. The drop factors would be standardized and would apply to all companies. You couldn't use your own experience in the calculation. This method would be reasonably simple to calculate, and seemed more appropriate than some of the arbitrary drop-factor methods that are currently being used, such as the one-third drop factor prescribed in the variable life model regulation.

We also looked at mortality tables for MGDBs. We concluded that neither the IAM nor the CSO tables were appropriate. Instead, we believe a group-based table is more appropriate for all MGDBs, even if the underlying contract is individual. The table that we selected was the 1994 Group Annuity Mortality Basic Table with a 10% margin added for conservatism. We are also recommending that no projection factors for mortality improvement be applied to this table.

The retrospective component is a fund-type approach, accumulating annual contributions less claims. The annual contribution is based on a conservative expectation of the remaining cost of the MGDB. This contribution would be determined stochastically to capture risk variations. It would also be adjusted for both actual experience and the reserve accumulated to date.

Some regulators have expressed concern with the stochastic approach. While they recognize that stochastic approaches have theoretical merit, they have some concern that two companies with identical products could get different reserves in a stochastic approach. They've asked our work group to look at standardizing some of the components of the stochastic formula to minimize this concern, and our group is addressing this issue at the present time.

Another unresolved issue is how to combine the prospective and retrospective components. An easy way is just to take the highest of the two. That's certainly conservative but it does result in significant fluctuations. Some other possible approaches are taking weighted averages of the two, or actually combining the attributes of both into one formula. Again, something that we are looking at right now.

Another issue is asset-adequacy testing on MGDBs. Our group looked at the actuarial standards of practice, and it seemed clear that if you have material MGDB risk, you

really do need to consider asset-adequacy testing. You may also need to look at separate account returns, which are different from the general account paths. Some of the traditional tests like the New York Seven probably don't make much sense in evaluating this risk. There has already been some proposed language at the NAIC to clarify the actuarial opinion and memorandum regulation as it applies to separate accounts.

MGDB reinsurance is another issue. Our work group believes that the most important thing to be considered is mirror reserving principles. Another issue that has come up is risk-based capital (RBC). Currently, no RBC requirement exists for MGDBs. The general thought is that the RBC plus reserves should be adequate somewhere around 95% of the time. We will be working together with the Academy task force on RBC in the future.

Another issue of concern for both variable and fixed products is GGG. As Tom mentioned, GGG is applicable when more than one benefit stream is guaranteed; they are referred to as multiple benefits streams. At a recent NAIC meeting, GGG was interpreted to also require consideration of "mixed" or "integrated" benefit streams. What this seems to mean is that you can't just separately look at benefits like surrenders, annuitizations and death benefits, but you also have to look at integrated combinations of these.

Recently, I've heard at least a half dozen interpretations as to how you would actually integrate these streams. It's beyond the scope of our MGDB GGG to define how to do that. What is clear though is that one theoretical advantage of integrating is that it eliminates double counting for both benefits and loads. For example, if you're doing a CARVM calculation you assume everyone surrenders at a certain year. It doesn't make sense to hold death benefit reserves for deaths that would occur any time after that full surrender.

One example of how this integration approach might work for death benefits would be to define total benefits in the year of the CARVM calculation, as the sum of a t year term insurance on the death benefit, plus, the cash surrender value for those who don't die. Finally, since our recommended MGDB reserve method was a stand-alone type of reserve, we concluded that we may need to do a little retooling of our recommended method to facilitate this interpretation of GGG.

I'd also like to mention a few practical considerations that should be addressed when integrating the CARVM and MGDB reserves. First, it should be noted that this integration may be an iterative calculation, meaning that trial and error may be needed to come up with the multiple benefit stream which produces the greatest present value. Not only is it iterative, but you may have to do a calculation for each and every year that you do a CARVM projection. That's before you even consider how to apply continuous CARVM. This could become very complicated, particularly if you factor in partial withdrawals and all the possible permutations that could occur.

Also, the greatest present value nature of CARVM tends to lend itself to a seriatim type calculation, whereas the stochastic nature of the MGDB calculation tends to be done more on a group basis. Plus, you may need to ultimately separate these integrated reserves into CARVM and MGDB components for reinsurance or general account

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purposes. And then finally there's a question as to what degree the assumptions and the two components need to be consistent (for example, the mortality or lapse assumption). Finally, if this isn't complicated enough, you also need to consider the tax reserve implications of integration.

The last topic that I want to address, is separate account surplus. Separate account surplus is typically generated by the fact that separate account assets are equal to the full account value, but the CARVM reserve liability is normally lower than the account value. The issue here is how to account for this CARVM allowance on the balance sheet and the income statement. Currently, many different practices exist. For example some companies hold the CARVM allowance as negative Exhibit 8 reserves, others hold a negative liability for amounts due from the separate account, and still others keep the CARVM allowance as separate account surplus. After much discussion, the separate accounts working group at the NAIC recently concluded that the CARVM allowance should be treated as an amount due from a separate account (in other words, a negative general account liability). It was also concluded at the separate accounts working group meetings that the CARVM allowance is legitimate surplus, and therefore can be run through the general account income statement.

Finally, RBC on this CARVM allowance is an issue that's getting a great deal of attention right now. The recommended approach from the Academy RBC group, which is actually being exposed right now for comment, is to require RBC equal to 10% of the CARVM allowance if it varies with the separate account. For example, if you have CARVM allowance that is based on surrender charges which are a percentage of premium you would not have to hold RBC for the CARVM allowance.

To conclude, I think there's a great deal going on at the Society, the Academy, and the NAIC in the variable area. In fact, when you think about it, just about every aspect of valuation is being addressed right now for potential change. Many of these issues, like stochastic testing, are on the cutting edge, and I think it's likely that the outcome of some of these issues will affect the price for not only variable products, but fixed products as well.

MR. ALAN C. LELAND, JR.: A couple of questions for Steve. When you were going through those guidelines or recommendations that the task force came up with, you talked about the expected volatility based upon the type of fund involved. You said it was going to be based on the standard deviation of returns of that fund. Does it imply that the standard would be one standard deviation or could it be some multiple or some fraction of that?

MR. PRESTON: That's a good question and one that I don't think we've come to a final resolution on. I think what we've concluded thus far is that the projected drop would be a function of standard deviations. Determining whether it's one standard deviation or two is really a function of the confidence interval that you want to achieve in your reserve. And my instinct tells me that this will be an issue ultimately decided by the regulators.

FROM THE FLOOR: Let me ask a follow-up question. You talked about the prospective reserve and the retrospective reserve. The prospective is designed to cover the risk of loss in the short term, and the retrospective is designed to cover the

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long-term risk. Then you talked about a number of possibilities of how those two might be put together. One is the greater of those two, and one is a weighted average, and there might have been some other possibilities I missed. It would seem to me that the prospective reserve covers just the risk of the loss in year one, and the retrospective reserve covers the risks of losses in years after year one. Wouldn't you take the sum of those two?

MR. PRESTON: Several regulators made that same comment in some of the discussions we've had. I think there are a couple of reasons why that's not theoretically correct. The first one is that the retrospective method is used to cover benefits in all years, not just years two and later. So, there is some double counting if the two components are added together. Second, the prospective reserve doesn't provide for any reduction in that year for any charges that would be collected to offset the cost. So that it would probably be inappropriate based on that to simply add them up.

MR. CAMPBELL: I can appreciate the fact that you get into problems if you build conservatism into one factor, the other or both, and then you try to add them together. You can certainly end up overreserving. I can also see that you have a problem if you simply take the greater of the two reserves. Because if one product is designed with short-term risk, very little long-term risk, and another product is designed with equal amounts of short-term and long-term risk, you end up taking the greater of the two. If the two of them are equal, you're going to have both products come out with the same reserve, even though one product may have a significantly greater risk.

MR. RICHARD F. LAMBERT: I'd just appreciate any comments on the likelihood of this being extended to variable life products.

MR. CAMPBELL: We've been asked to tackle variable life once we finish with variable annuities. But right now, we're just trying to get through variable annuities. But I think you make a good point. Many of the principles that we're coming up with can be applied to variable life, particularly Steve's references to the standard deviations. If we'd come up with a drop that's not necessarily one-third, that could also be applied to variable annuities or variable life.

MR. PRESTON: I would also add that several of the regulators we've talked to about variable annuity MGDBs believe that the one-third drop on variable life may be inappropriate and needs to be looked at as well.