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**Session 12OF**  
**Risk-Based Capital C-3 Testing**  
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**Moderator:** Hubert Mueller

**Panelists:** Nancy E. Bennett  
Miles B. Yakre

*Summary: The National Association of Insurance Commissioners (NAIC) has proposed a requirement that certain products have risk-based capital (RBC) C-3 on the greater of fixed factors and results of a formalized cash-flow test.*

*The panelists provide a summary of the requirements of C-3 testing followed by a discussion among the participants regarding implementation issue (i.e., product covered, scenario assumptions, modeling techniques, and practical applications).*

**MR. HUBERT MUELLER:** I'm a principal with Tillinghast in our Hartford office and also looking after the North American risk management practice for our firm. I will be the moderator for this session.

The background for this session is the new C-3 risk-based capital testing requirements that the NAIC Life Risk-Based Capital Working Group, in conjunction with the American Academy of Actuaries' Life Risk-Based Capital Task Force has put together. The revised approach, which will be required for companies for the year 2000, means that you will have to start incorporating cash-flow testing requirements for annuities and single-premium life products. This makes the RBC C-3(a) calculation more consistent with recent industry advances in dynamic cash-flow testing.

In simple terms, the new calculation projects the statutory surplus of interest-sensitive fixed annuity and single-premium life products along a given set of scenarios (this can be either 12 or 50 scenarios), discounting each year's deficit back to the current time and picking out the worst of these deficits. Essentially, the ultimate C-3 capital requirement is calculated as a prescribed weighting of a set number of these scenarios.

What is important to mention is that just before the adoption of the new regulation, several exemption tests have been inserted into this regulation, in response to industry comments that these requirements are unnecessarily time consuming for the larger, well-capitalized companies. These changes are expected to limit the number of companies that will be subject to these cash-flow testing requirements. In the panelist's opinion, the new regulation will only apply to about 50–75 companies, primarily single line, single-premium life and annuity writers. However, there are some implications with the rating agencies that we will go into as well. We don't want all the larger companies to relax yet.

To discuss this topic in more detail, we have put together a very knowledgeable panel of speakers who will give us the necessary details on this new regulation.

Starting off will be Nancy Bennett. Nancy is a senior consultant with the Avon Consulting Group in their new Woodbury, Minnesota office. She joined the Avon Consulting Group in 1999, and her consulting practice focuses on asset/liability management, corporate modeling, and general financial management operations. Before joining Avon Consulting, Nancy was employed by Minnesota Mutual for 18 years, where she spent the first eight years in individual life product development and then the next ten years building the company's corporate actuarial department and being the company's appointed actuary. Nancy will start off by giving us details on the history of the proposed regulation, the current formula, the revised formula, and an overview of the testing requirements.

We will then switch over to Miles Yakre. Miles is a vice-president and corporate actuary with Fortis in New York, where he has been since 1999. Prior to that, he worked with one of the Fortis companies, John Alden, in Miami for about eight years. Prior to that, he worked at the

Equitable in New York. Miles is a member of the American Academy's Life Risk-Based Capital Task Force, among his more recent functions. Miles will give us insights into the more technical details of the calculation.

After Miles does his presentation, Nancy will come back one more time and give us her views on the interpretation of these results and the impact on what that will mean for your company's procedures. As this is an open forum, we will make sure that there will be plenty of time for discussion at the end.

**MS. NANCY E. BENNETT:** I'm looking forward to an open exchange of ideas on this particular topic. Of all the times I've spoken, I think this is the hottest topic as evidenced by the attendance at this session.

As Hubert mentioned, I'm going to cover some of the history on RBC. I have been involved with risk-based capital for a number of years. About ten years ago, the State of Minnesota developed a risk-based capital formula for use with companies that were filing financial statements with the State of Minnesota. I was on a task force that developed that risk-based capital formula, which then became the precursor to the NAIC's formula. I have quite a bit of perspective on the risk-based capital formula and all the machinations since then.

More than ten years ago, all states had minimum surplus requirements associated with starting a company. The surplus requirements ranged from \$150,000 to \$2 million to start a company. Once the company was running, the states would use the Insurance Regulatory Information System (IRIS) to monitor the ongoing company solvency. There are 12 different IRIS ratios, the one that was most relevant was the surplus-to-liabilities ratio.

As a lot of developments took place in the industry, in particular some insolvencies, many of the constituencies that evaluate the financial strength of insurance companies recognized that there was a need for better capital measures and monitoring systems to make sure that the companies

were remaining solvent and still able to meet the obligations to their policyholders. As a result of all of this, many companies developed their own risk-based capital measures. Finally, the states started getting into the action, and the states of Minnesota and New York developed their own capital measures that were used to supplement these IRIS ratios. Finally, in 1991, the NAIC introduced this standardized risk-based-capital ratio that ultimately surpassed or usurped the different state ratios.

I'm sure you are pretty familiar with the risk-based capital formula in structure, so I'm just going to briefly cover it. Within the risk-based capital formula, there are four categories of risk delineated: the asset default and subsidiary risks, which are the C-0 and C-1 risk; the risk of pricing inadequacy, or the C-2 risk; the interest rate or disintermediation risk, or the C-3 risk; and the general contingency or the C-4 risk. Once these four categories of risk are delineated and qualified, there is a co-variance adjustment applied to the arithmetical sum to reduce the total risk for the company, recognizing the co-variance reduction.

As you know, this risk-based capital formula is completely formula driven, and is entirely derived from published statutory statements. When this formula was first introduced, everybody recognized the limitations of using only published data, but the regulators were very interested in having the formula based on numbers that came only from published statements. The purpose of the risk-based capital formula is to screen for solvency. Solvency, of course, is the primary concern of regulators. In particular, the purpose of the RBC calculation is to identify weakly capitalized companies. In other words, the purpose of the regulatory risk-based formula is not to rank the capital strength of different companies. If you go back to 1990 and 1991, when the formula was being introduced, there were several discussions and some provisions put into the regulation dealing with the publication of the data and using the data for competitive reasons. In practice, the risk-based capital ratio is used to rank the capital strength of companies, even though it was not what the regulators intended.

With respect to the C-3 component of the current NAIC risk-based capital, everything is based on the information or the data that are published in the statutory financial statements. The percentage for C-3 risk is based on the statutory reserves, and the percentage for C-3 varies by

product type, but the product distinction is dependent completely on how reserves are distinguished within the statutory statement. This approach of calculating C-3 as a percentage of published reserves, of course, comes with a lot of limitations. First, the formula penalizes companies that hold higher reserves. If you hold reserves on a net level premium versus a Commissioners Reserve Valuation Method (CRVM) basis, you actually have to hold higher capital, even though you have a stronger reserve basis. This RBC result is counterintuitive to the concept of risk-based capital.

The formula only recognizes the policy options that are directly contained within the statutory reserve calculation. Even though the formula is supposed to capture the required capital for asset/liability management risk, many items cannot be taken into account in the current C-3 calculation because it's limited by the statutory reserve calculation. This is what I mean by the fact that the formula does not capture the integrated nature of asset and liability management because the formula only looks at the liability side and ignores the asset side. The formula is also static. The formula does not reflect the sensitivity of the value of assets and liabilities to interest rate changes. It's strictly a snapshot calculation.

To give you a brief overview of the new C-3 formula change, the revised approach replaces this factor-based formula with a discretionary approach based on the company's unique asset and liability risk profiles. The regulation specifies two tests to determine if a company is exempt or nonexempt from this new RBC methodology. In addition, for all companies, there will be an additional level of C-3 capital required, based on certain callable assets.

For those companies that are exempt from cash-flow testing, the current formula factors will continue to be used, and for those companies that are allowed (they're nonexempt, so they will be doing C-3 scenario testing), the current formula factors will continue to be used for all of the other products that are not C-3 tested. What this really means is that you have to hold C-3 capital for all products. You're either going to hold it based on a percentage of the statutory reserves or you might be able to calculate it based on the C-3 scenario testing.

This is a big change to RBC; the regulators know that RBC will be based on the cash-flow testing models. Although the industry has been cash-flow testing for close to 20 years, the regulators are concerned that this ratio was going to take on a discretionary nature. The accommodation to the regulators was that they put a range around the RBC results. If you do all this testing, you can't hold any less than 50% of what you otherwise would have held using the old factors. You don't have to hold any more than two times the amount based on existing factors.

This C-3 revision only applies to annuities, GICs, single-premium life insurance, and funding agreements. This revision is for companies that are nonexempt. The company's appointed actuary will determine the C-3(a) capital based on the cash-flow testing model and the results using the 12 or 50 prescribed interest scenarios. In addition, you'll have to calculate this additional capital for the callable assets supporting these untested products. That amount of capital is equal to 50% of the difference between the statement value and the call price. We can get into this in a little bit more detail, but I suspect you'll have some questions about the definition of callable assets. Callable assets in the instructions have been left intentionally vague, but essentially they are any kind of asset with optionality, like callable bonds, collateralized mortgage obligation (CMBs). Many types are intended to be included in this last change on the C-3(a) piece.

At this point, I'm going to turn the presentation over to Miles, and he's going to discuss the calculation specifics in more detail.

**MR. MILES B. YAKRE:** Nancy will be back for an encore presentation after I speak. Do you remember when RBC first came out? It was supposed to be something that the accounting department could fill out by themselves. You just take it from the annual statement. Maybe you have to add a few things from company records, but most come from the annual statement. That's how it started, and little by little, that has changed over the years. C-3 was the last great frontier of the RBC formula that was not invaded by excessive complexity. C-1 was split off into C-1 and C-0. Any of you who have health insurance on the books know what they did to C-2 a couple of years ago. I guess C-4 is a close second in terms of simplicity. C-3 was simple, and in

the good old days, you took your life and annuity reserves, and you categorized them in a particular way, and you applied a factor. The factor depended on the category, and that was the end of it. It was one page. That's all over. Nancy has done a very nice job of describing the new scenario-based system, but when you see the instructions for this year's RBC, what's happening might not be intuitively obvious. What I tried to do was explain that everything has to happen in a certain order, and I tried to go through that order. It might become a little more intuitive.

In the good old days, you had your low-risk, medium-risk, and high-risk reserves, and each one had its own factor. You still start that way. You start that same way, except you're going to do it for two different groups of products. You're going to bifurcate. You're going to do it for two different universes. You're going to take these products that are called the certain annuities and single-premium life, or what I call ASPL, that were cash-flow tested. There are these products on one hand, and everything else on the other hand. You go through the old factor-based C-3 RBC first, but you're going to do it separately for these two sets of products. That's what the instructions are doing, and this has added many, many pages to the instructions.

There is one, additional new item, though. This is the additional capital for callable assets. Nancy's absolutely correct that the description of callable assets is very vague. I asked the Academy task force what specifically are callable assets for purposes of this calculation? They include everything such as callable bonds, CMOs, and residential and commercial mortgages. The best definition is any asset that can be called or prepaid away from you at less than the current statutory book value or statement value. It's any asset that can be called or prepaid away from you. That calling or prepaying is totally out of your control. If that were to happen, and if you would have a book statutory loss, then you would need to hold half of that loss as additional capital. You look at this on an asset-by-asset basis.

Let's talk about CMOs. You might think it is onerous. That would require an entire pool of mortgages to prepay, simultaneously, a pool that might be many tranches away, yet, that could happen. As a result, that's included in this definition.

The callable asset capital is added as a one-liner in the C-3. It's added on top of the old C-3 that you're doing in these kind of parallel universes for these two, different sets of products. That's the first thing that's going on.

When you're finished, you arrive at a C-3(a) number, which should be the same number you would have under previous years, except that you have this addition for callable assets. You take a look at your annuities and single-premium life, and you need to determine if you need to throw away that piece and do it based on scenario testing instead. You now, at this point, are looking at the exemption tests. This is interesting because I do believe that the exemption tests that we're going to go over right now exempts almost every company in the United States, with the exception of about 50. So these new complex C-3(a) rules ultimately will affect very few companies. We at Fortis have 16 life entities, and they're all exempt. If you don't know if you're exempt, you should find out pretty quickly because this is happening for year-end 2000.

What are the exemption tests? First, is C-3(a) important to you? Is it significant in the risk profile of your company? This is a very simple test. You take C-3(a) as your numerator and divide it by the arithmetic sum of all your C's. That's C-0, C-1, C-2, C-3(a), C-3(b), C-4(a), C-4(b). There are no co-variances; it's just a straight arithmetic calculation. If C-3(a) is more than 40% of that arithmetic sum, then C-3(a) is significant to you, and you've blown your exemption. I would think it's pretty difficult to get that to happen. For most companies, I think C-3(a) is less than 40% because any company with a high C-3(a) also has a high C-1. You have to meet both exemption tests to be exempt. We'll talk about the second one right now.

The second one is if you took your old factor-based C-3(a) for your ASPL products and multiply it by 7.5 (in other words, that C-3 is 7.5 times as large), would you be in an action level? Would your RBC ratio be under 200% of authorized control level (ACL), or 100% of company action level (CAL)? In other words, if you took the C-3 for those products, and it was 7.5 times as big, would somebody be knocking on your door looking to take some action? Again, if you're adequately capitalized, your company is going to pass that exemption test as well. The two exemption tests are really looking to identify the thinly capitalized, heavy C-3(a) companies. Those are the ones that have to go ahead and do this scenario-based C-3, which is almost nobody.

Pretend you're one of the 50 companies in the U.S. that have to do this. Remember we said we're going to do the old C-3 for both sets of products. Now you're going to substitute for the old way and you're going to substitute this new scenario-based calculation for the ASPL products. You don't have to hold the callable asset piece for the ASPL products anymore because that'll be subsumed into the scenario testing number that you come up with. It replaces both of them. Here's a key point. There is no optionality. What do I mean by that? When we at Fortis first heard about this, our first reaction was, "Wow! That's a lot of work." But the second reaction was, "Hey, we fancy ourselves to be pretty well matched. Maybe this will be good for us. Maybe it's worth doing the work to reduce our capital requirements and increase our RBC ratio." But that's not possible if you pass the exemption tests. You don't do the scenario testing, even if it's good for you.

That leads to a perverse result. I think that this is one of the first times that your required capital is actually a function of your actual capital. A circularity starts happening here. Let's say you're very well capitalized, so, of course, you're going to pass that second exemption test, and you're not going to be able to do scenario testing. But let's say you're very well matched, and you want to do scenario testing because you think it will result in a lower C-3(a) requirement. It's possible then to take a dividend out of your company. Then you flunk that second exemption test. Then you get to do scenario testing, which, if you're well-matched, lowers your RBC. If you follow that logic, there is a way for certain companies in certain positions to take a dividend and increase their RBC ratio by taking that dividend. This is, I'm sure, an unintended result.

If you are one of the companies that has to do the scenario testing, it's constrained to be no more than twice or less than half the old way. You might be wondering what it is twice or half of. That is done at the total C-3(a) level. You have this total C-3(a) that you did based on the old way first. The resulting C-3(a), after substituting the scenario-based calculation for your ASPL products, can be no more than twice or less than half of the old total C-3(a). That test is done at the total C-3(a) level, at the very end.

The question is, how do you do this scenario testing? It's intended that you start with your cash-flow testing model for these particular products that this applies to. You have to include your

IMR. You do not include your AVR because the AVR is really there for excess defaults, and that's really covered by your C-1 capital factors. So you do not do this test with AVR. If you do your baseline cash-flow testing with AVR in it, you're going to have to take it out. Most other assumptions are the same as your base cash-flow testing or your asset adequacy analysis. If you do scenario testing, the appointed actuary will need to provide a certification that the assumptions are valid in the cash-flow testing. When you do the scenarios, you're either doing a 50-scenario set or a 12-scenario set.

Why would you choose the 50 over the 12? If you choose the 12, there's a cost there, and you're going to wind up with a more conservative number the way they have it set up. If you have the time and the computing power, you want to choose the 50. You run these scenarios. In each scenario, you calculate this "worst present value" (Commissioner's Annuity Reserve Valuation Method (CARVM) concept. You can calculate the worst present value of any end-of-year surplus in the scenario. For example, if you're doing a 30-year projection, and you're doing 50 scenarios, in each of the 50 scenarios, you're going to look at each of the 30 end-of-year surplus values in your projection, present value them back to today, and take the worst one for each scenario.

You're going to wind up with 50 numbers, which is the present value of any worst end-of-period surplus during the whole projection. Then you rank the scenarios by how bad these present values are. Then, if you're using a set of 50, you take the weighted average of the 5th through the 17th worst scenarios. The weights are in the instructions. There's not an arithmetic average of the 5th through the 17th. It's a special weighted average. If you are doing the set of 12 scenarios, you're going to take the average of the second or third worst scenarios, but not less than half the worst. That will probably be worse than the 50.

Some of you might be thinking, I don't have one consolidated model for all my business that falls under this. What do I do? They actually give you two choices. I've thought a lot about this. I actually think one choice is always better than the other choice. If anybody else has any thoughts, please tell me. The choices are if you have two, separate models that you're running these projections in, one choice is you can either combine all the surplus values at the end of each year

by scenario. So you're going to have two sets of 50 scenarios, each scenario with 30 end-of-year surplus values. You would combine at that level, and then you'd do your present value of the worst one and come up with 50 numbers. Or they give you the option that you can do that present value of worst end-of-year surplus value for each scenario first, and then combine by scenario. I can't imagine why you'd ever want to do that because you could have this model subsidize that model. If this has a good scenario, but that same scenario is bad over here, you'd want to combine them first and then do this present valuing. Maybe I'm wrong.

**MS. BENNETT:** I want to wrap up here and finish with some comments and some interpretation of the formula. Many of you have probably figured out that your company is nonexempt so you are breathing a sigh of relief because you don't have to worry about this.

There are approximately 350 companies doing cash-flow testing, per Section 8. Of the 350 companies, rough numbers suggest that 40 to 75 companies will be required to calculate RBC using the new formula. You might be relieved that you're in the 300 companies that aren't going to have to deal with the new formula.

I have one piece of bad news for you. I have spoken with all the rating agencies, and as you may or may not know, both Moody's and Duff & Phelps use the NAIC risk-based capital ratio directly in their ratings process. Standard and Poor's and A.M. Best have their own formulas that smell a lot like the NAIC approach. Moody's and Duff & Phelps have said that they plan to ask companies in the rating process how the results come out. They don't care if you're exempt or if you have to file. They believe that this revision is a much better approach and produces a more rational level of C-3 capital and capital strength rating. So you will be getting a question from the rating agencies. If you are particularly interested in Moody's view, they have put out a special commentary, and it is available on its website.

Let's take a step back for a minute and think that you might be with one of the 350 companies that would have to interpret how this formula affects you. One way to look at this formula is that it really takes on a value-at-risk flavor, which is, of course, becoming quite the new tool. RBC is no longer just a snapshot, point-in-time calculation.

This formula change only applies to those products, which the AAA committee and the NAIC deemed to have the greatest amount of C-3 risk. There are major products that have a lot of C-3 risk that are excluded from this formula.

For example, individual life products still have a significant amount of C-3 risk, but they're not contemplated in this formula. When the RBC committee was developing the mechanics for this particular formula, they were anticipating that UVS or viability was going to pass. As such, they wanted to put a more rational risk-based capital ratio in place, but they figured that when UVS eventually passed, risk-based capital would have to be completely overhauled. They decided to just focus on the annuity products that have the greatest amount of C-3 risk.

The good thing about this formula change is that it does capture both the dynamic and integrated nature of asset/liability management which is, I think, a good thing. Also, this formula captures interim results, not just the ending results that are emphasized in cash-flow testing. When you do cash-flow testing, you really are just looking at the ending results. However, because of the discounting nature of this new approach, the effect of interim results are captured.

In the formula, the base model assumes that all profits are retained within the line of business; therefore, those retained profits are used to fund future capital needs. I think this formula approach is better. There are still holes in it, but I think it's a much better and a more rational approach to calculating the capital associated with interest rate risk than when it was based on a percentage of reserves.

In terms of your company procedures, you're going to be looking at your cash-flow testing model in a whole different way. The credibility of your asset modeling and your liability modeling are going to come to the forefront here because you're going to be using your cash-flow testing model now to calculate a number. There isn't going to be a red or a green light at the end of the model run that says, "Reserves are adequate." You actually have to pull a number from the model. You will have to be pretty comfortable with the model results because the number will be reported to regulators or at least communicated internally.

I think you're probably going to end up looking at the results, and they might or might not seem intuitive to you or reasonable. That might be because you aren't doing a good job of capturing the dynamics of your calls and prepayments within your asset modeling. There might be certain asset classes (for example, derivatives, or CMOs, or some of these total return assets), that tend to be sort of troublesome when you're cash-flow testing.

You also are going to have to think a little bit about your investment and disinvestment assumptions. I believe the one assumption that is specified in the instructions that might differ from your cash-flow testing assumptions, is disinvestment. According to the instructions, if you assume a borrow disinvestment assumption, you must assume that your borrowing rate is 105% of the one-year Treasury rate. That might or might not be what your assumption is in cash-flow testing.

There are some things to think about in terms of your asset modeling and whether or not you have, in fact, captured all of the components or dynamics of your assets that would, in fact, affect the interest rate risk. Conversely, you have to think about the liability modeling and wonder if you have also captured the dynamic nature of policyholder behavior such as loans, lapses, transfers, and maybe even flexible premium deposits to the extent you model those in your cash-flow testing systems. What is probably most important is the crediting formulas. I think those can be particularly troublesome to make credible.

You will have some procedural issues to deal with. The filing is supposed to be based on December 31, 2000 data. Many companies, if not most companies, do their cash-flow testing based on December 30. There are some filing procedures. I don't actually have all the details, but clearly you're going to want to coordinate the calculation of this risk-based capital ratio with your cash-flow testing schedule and your annual statement calendar as well. Clearly, if you have to do C-3 scenario testing, I think it's pretty safe to say that that's going to stress a lot of cash-flow testing systems. You're probably going to want to reserve some weekend time and possibly notify the light company.

I think overall that this formula does a better job of capturing the dynamic and integrated nature of the interest rate risk. I do recognize that the formula change will require some additional effort by companies. I will take an unusual stand here and side with the regulators on this. I think this formula was a little bit more work, but I don't think it was as much work as the industry was suggesting that it would be. I think it's an unfortunate thing that the industry pushed the exemption test so much because, in the end, a lot of companies could have released capital and gotten to a more logical, rational measurement of required capital. I know some companies, particularly the ACLI, pushed to make this testing optional. The regulators said, "You can't have it both ways. You're either all going to do the testing or we're going to let you exempt out, but we're not going to give you the option to game the system and essentially create a two-tier structure of capital strength." Like I said, "I can't really disagree with the regulators on that."

I'll just touch on a couple of the other issues. First, if you haven't looked at the formula change, you should review it. There's a lot of information published on this on the NAIC website. I think there are some links from the American Academy. The scenario generators are available. There is a lot of information out there. First, you must determine if your company is exempt. Again, if we assume you're probably going to be exempt from testing, I suggest you should still determine whether or not you want to implement this formula change in some of your internal capital procedures.

There are a lot of companies that use the NAIC formula or a multiple as their basis for allocating capital internally. If I were in my former position, I probably would have strongly considered using this new formula as a basis for allocating capital to the lines. You might have to report RBC on a different basis, but the new approach is just much more rational. At a minimum, you want to look at that and think through whether or not you should change your internal capital procedures to reflect this formula.

There's a lot out there in terms of information and instructions. Most importantly, you need to set up a process. It's not really that hard to set up this calculation, but there are a lot of steps along the way. You're calculating 1,500 values. If you're running 50 scenarios, you're

projecting out 30 years, just as most companies do in cash-flow testing. You'd use a grid that is 30 x 50 or 1,500 values, and that's just for one segment. You might have multiple models. Calculating RBC is really a large data manipulation process. Again, it's not hard or complicated, but there are a lot of little steps along the way.

I think you first need to set up a process because, again, the values are based on December 31. You're not going to have a lot of time to do this if you find out you're nonexempt in the first or second week in January. I think you want to be prepared. I suggest that you test the changes with your 1999 cash-flow testing model, just to see what the results are. That'll be a good way for you to see if the answers are reasonable and see if the formula reflects what you think your company has assumed for interest rate risk. It'll be a gut check on how credible you think your model is. I talked about some of these issues before. Do you think you're capturing all the dynamics and optionality of your assets and liabilities? Make sure you incorporate this into your procedures and schedules. I would be prepared to explain the changes to the states and the rating agencies.

This particular formula is going to be in place for a while, starting with 2000, but the committee is contemplating a few other things to add to the formula. The first thing is whether or not this C-3 change should be applied to equity-indexed annuity (EIA) products or to variable products with secondary guarantees.

The NAIC is going to be gathering the results from all the filings to see if this range (the 0-.05 to 2) for capping is appropriate. I think what you will find is that if this cap weren't in place, a lot of companies could actually drop their C-3. I don't know if they could completely eliminate C-3 capital, but I think it would be substantially less than 50%.

The other concern of the regulators is the gaming aspect. They're concerned that companies might modify their cash-flow testing practices just to avoid the C-3 scenario testing. I think the regulators are missing a bigger issue related to moving capital up from subsidiaries, but this is not the first time you've been able to game the risk-based capital ratio.

In summary, if we forget about the exemption test for the moment, I definitely think the formula change is good. It's a much more rational calculation of risk-based capital. I think it's good because it strengthens the appointed actuary position, and it formally recognizes integrated asset/liability management in your financial statements. The formula does, in fact, measure and reward companies that have good interest rate risk management practices. I also think the formula gives state regulators more information on the interest rate risk of companies, which, you know, really isn't bad. Most importantly, the formula provides a quantitative basis for analyzing interest rate risk and evaluating the effectiveness of a company's ALM practices.

**MR. MUELLER:** Thank you Nancy and Miles for your contributions. I would like to add to what Nancy was saying. I think you really ought to take the opportunity and look at these formula requirements and use them to allocate your capital internally on this basis. As such, this becomes more of an economic capital approach, rather than some artificial type of capital allocation.

**MR. STEPHEN A. J. SEDLAK:** It was mentioned that the cash-flow testing piece is not optional. If you pass the two tests, you cannot do it. Where is that in the instructions? I went through them a couple times, and I could not find where it says that. The instructions themselves look permissive in that regard.

**MS. BENNETT:** I don't know if this was clear, but there are instructions. There is an appendix to the instruction. The appendix actually contains the American Academy report. There is a lot of information in that appendix. Much of the explanation is in the appendix. I think the exemption tests are in there.

**MR. SEDLAK:** It is not in its recent iteration anyway. It's like committee reports; it is a textbook.

**MR. YAKRE:** Right. I'm looking at the exemption worksheet. If you pass the exemption tests, you don't ever get to that other scenario testing part.

**MR. SEDLAK:** My recollection, and this is from a couple drafts ago, is that September 30 data was allowed to be used in the cash-flow testing if you had to do the cash-flow testing. You did the calculations for the exemptions as of year-end. Did that get removed?

**MS. BENNETT:** No, it didn't get removed. Assume that you are not exempt. What you're ultimately coming up with is a C-3 factor. Instead of it being 3% or 4% of reserves, you're coming up with this weighted factor based on having done all this scenario testing and weighting. You're going to come up with a factor that's 0.5. You will take that 0.5, but you will have determined that 0.5 by doing your cash-flow testing on September 30 data. You'll still use the 0.5 and apply it to December 31 reserves.

**MR. SEDLAK:** I thought that, if you couldn't get it done on the cash-flow tested basis in time for the statement filing date (March 1), that you could then make this test. If it was more than 105%, then you would file the result with the NAIC in the domiciliary state.

**MR. YAKRE:** The problem is that your annual statement is going to the printer February 15. If you don't have your cash-flow testing done, assuming you have to do the scenario testing, you can actually estimate your RBC for inclusion in the annual statement that goes off to the printer on February 15 and then gets filed on February 28. The problem is when you mail in on February 28, you have to mail in a diskette that has your scenario testing results. That's where that 5% comes in. If you're 5% off from what you put in the annual statement, then you have to refile with only the domiciliary state and the NAIC. You're allowed to put in an estimate when it goes to the printer if you don't have your scenario testing done.

**MR. SEDLAK:** So, there is sort of a grace period.

**MR. YAKRE:** Yes.

**MR. SEDLAK:** My final question is, in the instructions, right after it speaks to the three components of the cash-flow tested version of C-3, there is a sentence that says that you will exclude the equity portion of variable contracts. Some companies, like mine, have a lot of

variable components. It also means you're going to have to do some things that are a lot different than your cash-flow testing, like adjust for expenses, or chop off that variable component. That might be nontrivial in these timeframes.

**MS. BENNETT:** Right. I think you're probably touching on what I think is a bigger issue with respect to cash-flow testing. I don't think there's any convergence of practice in the industry as to whether or not companies include the variable portion of annuities in their cash-flow testing. A fair number of companies don't cash-flow test variable annuities. I think cash-flow testing and RBC only focus on interest rate risk and the effect of that risk on the general account under the theory that there is no interest rate risk in the variable funds. That's the theory.

**MR. MUELLER:** That's right. I think the theory is that the regulation is more concerned with interest rate risks rather than general equity market risks.

**MR. YAKRE:** Sure.

**MR. SEDLAK:** There are very closely related risks on, one particular transfer that is another form of disintermediation and reinvestment risk all in one, nice, little, bright package that ticks. Then, you have to have an economic scenario that's going to deal with that kind of equity growth environment as well. Is there any guidance on what that really will mean in that Academy report that I didn't read?

**MS. BENNETT:** Steve, some of the issues you raised are important in terms of testing. Again, the purpose of this risk-based capital test is to look at the impact of interest rate risk on the general account assets for the insurance company. I think the issues you're raising are very legitimate issues in terms of general company management and in terms of how some of those different risks affect your company's total value. However, this is really just a regulatory snapshot. The regulators really care about the general account.

**MR. JAMES A. GEYER:** I have a couple of questions. I've not looked at the detailed instructions yet, and I assume this is clear in there, but your points about the extra capital for

callable assets are going to be required if you are exempt from this calculation. That, as you said, includes most of us. Does that apply to all assets in the general account or just those associated with these products?

**MR. YAKRE:** That's a good question. If you're exempt from scenario testing, you will wind up, by virtue of the flow of this, holding that extra callable asset capital for everything. That is for ASPL products, the other products, and surplus.

**MR. GEYER:** Okay. I was afraid of that. The second question is along the same lines. You said that that's calculated by looking at what the asset would be called at versus a statutory value. If you have a bond that has call protection, so it's not callable until a year from now or two years from now, is that included in part of the calculation or are only those bonds that are callable as of the December 31 date included?

**MR. YAKRE:** I believe the instructions say that you're looking right now. If you're in a call protection period, you don't have to worry about that bond right now. There's no forward-looking aspect of this. But that bond will come on the radar screen, two or three years from now, and you deal with it then.

**FROM THE FLOOR:** You mentioned, as I recall, that the AVR is to be excluded from the cash-flow testing. I see AVR going hand in glove with default rates. Is there any specification as to what default rates you should use?

**MR. YAKRE:** It talks about that in the instructions, too. I wondered about that also. What it is saying is you should leave your expected default rates in your model, but you don't need AVR because it says AVR is only for defaults in excess of your expected default rates. They're saying, you ignore your AVR, but you still have to have expected default rates.

**FROM THE FLOOR:** That assumes you have two defaults. There is a split of your default rate. It also assumes that when you have an actual default, not all of it goes into the AVR. I find it inconsistent, but all right.

**MS. BENNETT:** If you think about how total capital is calculated, it's the unassigned surplus plus AVR plus half the dividend liability. In that regard, AVR has really always been considered assigned surplus. For cash-flow testing, you're required to include AVR because it's considered surplus, right?

**FROM THE FLOOR:** You're required to include IMR, but AVR depends upon defaults.

**MR. LARRY J. BRUNING:** Would you comment on reinsurance and the treatment of reinsurance? Is the calculation pre- or postreinsurance?

**MR. YAKRE:** I believe it's net of ceded and includes assumed. It's just like the old C-3 was.

**MS. CINDY D. BARNARD:** I was wondering at what level the aggregation takes place for the cash-flow testing. Let's say you were nonexempt. Are you aggregating the annuities with the single-premium life, or are they separate where you're taking the greatest present values?

**MS. BENNETT:** Yeah, that's your choice.

**MS. BARNARD:** So there is just one model for the whole company. Do you have one model for the tested product versus one model for the untested? Any reference as to what the rating agencies would look at? Would they be looking to aggregate at different lines or across the whole company?

**MS. BENNETT:** I don't think they're going to be looking at this across the whole company.

**MS. BARNARD:** But I would think that would give very different answers.

**MS. BENNETT:** I don't think the rating agencies are going to pick up on that issue.

**MR. MUELLER:** I can't imagine that they'd look at it in more detail than the American Academy of Actuaries task force.

**MS. BENNETT:** They're going to ask you the basic question. How did this formula change affect you? You're going to say, "My risk-based capital ratio was 315, and I was able to release capital. My ratio would be 350 now."

**MS. BARNARD:** But you agree you could get two very different answers.

**MS. BENNETT:** Yeah. I guess I'm just trying to sort of politely suggest that you might pick up on that distinction, but I'm not sure rating agencies will.

**MR. MUELLER:** I agree. You actually get some diversification benefits from accumulating models where you have some offsetting effects. If you look at it on a total company basis, you ought to be given credit for that.

**MR. YAKRE:** Let's go back a few questions. The instructions actually say you include assumed reinsurance. I can't find where it talks about ceded reinsurance, but I would think it would be net of ceded.

**MR. JAMES M. MERWALD, JR.:** Does the regulation specify what rate you'd use to discount the ending surplus values back at to get your present value?

**MS. BENNETT:** Yes. It's 105% of a one-year rate and then it is multiplied by 65%, assuming a 35% tax rate. I believe it's a one-year spot, but I'm not sure if it's spot or forwards.

**MR. MUELLER:** It's a rate that is fixed at the outset, rather than changing every year with the scenario.

**MS. BENNETT:** It is a one-year rate. I'll ask a question then. How many of you company folks have actually looked at this calculation? Is anybody willing to admit that they're probably nonexempt? There is a handful.

**FROM THE FLOOR:** This is more of a comment than a question. I think the way that they set up the thing for callable bonds is kind of perverse. I work on the asset side more than the liability side. Think of a 6% Ginnie Mae right now, out of the money. People are not prepaying their mortgages. You have a great rate, but now think of 9%. Chances are everybody that can refinance has refinanced, yet this is the very instrument that, if you went out and purchased it, is stable. It's relatively nonnegatively convex.

If interest rates come down, that 6% is going to go. Right now we have the least amount of negative convexity in the mortgage market that we've ever had. It's kind of like an avalanche, in a way, once it finally cuts through all the levels you can refinance. This is the stuff that's getting no additional capital. It's the stuff that's up here that's unlikely to refinance that you have to put additional capital up against.

**MS. BENNETT:** Yeah, I think you're right. I think the issue with this callable asset is that the regulators are saying, the company's surplus position is exposed to the optionality of certain kinds of assets if interest rates change. That is not being captured in the snapshot in the accounting statements because it's just how you're supposed to hold what the statutory book value is on particular assets. I understand what you're saying about whether they captured the risks the right way. I just think it's sort of interesting. I've asked committee members a number of times. They intentionally left that part of the instruction vague. That might be one of the most interesting things to follow after companies do the filing to see if there's any convergence of practice on that.

**MR. YAKRE:** I asked some people on the committee about this. The answer that I received was, you're only holding half of the value that's exposed here. For example, there are certain callable bonds that are almost certain to be called, yet you're only holding half. There are certain Ginnie Maes that are almost certainly not to be prepaid, but you're holding half. It kind of averages out.

**FROM THE FLOOR:** All I have to say is it doesn't reflect the real risks.

**MS. MARY A. MADDEN:** I have a question on the callable bonds. The regulation applies to assets backing the lines tested or used to support them. For each portfolio, we will project the whole portfolio and then prorate it down. Do you have to be more picky on your assets or can you prorate the whole thing?

**MR. YAKRE:** This is suggesting that you know exactly which callable assets back your ASPL products, other products, and surplus. Your portfolios might not be exactly funded at the date of the cash-flow testing. I think there'll be some art there.

**MS. MADDEN:** Actually, I was also wondering if there is any guidance on the appointed actuary certification for reasonableness? How big do they expect it to be or how detailed should it be?

**MR. YAKRE:** Most of us are hoping we don't have to do it.

**MR. MUELLER:** You can always supply more information the following year.