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Proposed Changes to the Statutory Risk-Based Capital Requirements

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Summary: Panelists provide an overview of the risk-based capital requirements. Shortcomings and proposed changes currently being considered by the AAA Life Risk-Based Capital Task Force are discussed. Practical issues with the implementation of these ideas are also presented.

Ms. Cande Olsen: I am vice president and actuary with New York Life Insurance Co. Currently I'm in the government relations area, but I have a background in corporate actuarial and individual life financial. I also am chairperson of the AAA Life Risk-Based Capital Task Force. We have a very dynamic panel to talk about risk-based capital (RBC).

First we have Joe Dunn, vice president and senior actuary at MetLife. He's in the corporate actuarial area, but he's involved in a lot of projects. He is very active in NAIC issues in general. He's a member of the Academy's Life RBC Task Force and has led the effort in researching many different topics on life RBC, mostly in the investment area, including RBC issues that relate to derivatives and common stock.

Next we have Larry Gorski, who is the life actuary at the Illinois Insurance Department. He's very active in NAIC financial and actuarial matters. He is the chairperson of the NAIC Life RBC Working Group and the Invested Assets Working Group.

Last but not least, we have Bob Brown, who is assistant vice president and actuary in the Retirement Investment Services area of CIGNA. He is also very active in NAIC issues, a member of the Academy's Life RBC Task Force, and currently chairperson of the C-3 subgroup, which is undertaking a major review of the C-3 component of the RBC formula.

I'm going to start by giving you a little of background on the RBC formula, some of the changes that we've made over the years, and the changes we are working on for the future. Then the panel is going to talk about some of the current key projects and the controversial issues involved. We want your opinions on some of these issues, especially the controversial ones. We'd love to hear how you might resolve some of the issues.

The NAIC RBC formula was first introduced in 1993. It's a very basic type of RBC formula that has four risk components: asset risk (C-1), insurance risk (C-2), interest rate risk (C-3), and business risk (C-4). The total of all those risks adds up to less than the sum of it's parts because there's a covariance adjustment that Joe will talk about later. The NAIC RBC formula produces a minimum capital standard meant to separate companies that are adequately capitalized from companies that aren't. It was based on the best available data at the time. Where data were not available to determine a particular factor for a risk component, factors were developed by piggy-backing on the modeling that was done for other factors for which data were available.

Why have we made changes to the formula since 1993? We make changes when there is more up-to-date data available, when there are annual statement accounting and reporting changes, when there's a new type of product or asset, or when the original basis of the factor development has been reconsidered. We weren't necessarily right about everything when we developed the first formula. Sometimes these things take a couple of years to be thought through. We're always considering materiality and what the effect would be on the minimum capital standard.

In 1994 and 1995 we made very few changes. In 1996 we made changes to introduce a factor for the counterparty exposure for derivatives. This change had the effect of increasing RBC in some instances and decreasing it in others. Another change was to move insurance subsidiaries from the asset risk (C-1) to a new risk category called the C-O risk, which has the effect of eliminating some of the risk reduction on account of covariance. This change had the effect of increasing RBC for some companies, but caused no change for most companies.

In 1997 the changes made had a bit more of an effect. We reduced the factor for basic mortgages and increased the factor for restructured mortgages to take into

account new data. For Schedule BA assets, we introduced a look-through, which decreased RBC for some companies and increased it for others. Finally, we made changes due to the introduction of synthetic GICs, capital notes, and equity-indexed annuities. Once again those were just changes because these were new products, new programs, or changes in accounting. These final changes did not have much of an effect on formula results.

In 1998, we were hoping to come up with a RBC change due to the introduction, several years ago, of new reporting data in Schedule S for modified co-insurance. We're going to use this information to update the RBC formula so that it has the same effect on the formula as co-insurance would. But that has turned out to be more complicated than we thought, so we're still researching it. We'd certainly love to have any of the reinsurers help us work on continued research into that. And that change probably won't be implemented until 1999.

We also made changes on preferred stock. We used to have a smaller number of categories, but we increased the number and set factors based on modeling that was similar to the modeling we had done for bonds. This had the effect of increasing the preferred stock RBC in some cases and decreasing it in others. For C-4 risk, or the business risk, we changed the basis of the factor for variable life insurance from a premium base to a reserve base and introduced a component for variable annuities. This probably will have an overall effect of decreasing RBC. Finally, when the NAIC came up with an RBC formula for health organizations (HORBC), we made some changes to the life formula so it would be using some of those same factors, where appropriate.

This should give you an idea of where there were increases and decreases to RBC. I wasn't expecting everybody to understand the exact details of the change. In 1999 and beyond we hope to continue to work on developing changes for modified co-insurance. I think the effect there would just be to shift the RBC between ceding companies and assuming companies. We hope to make changes on disability income and long-term care to take into account some of the research that was done by the HORBC people.

We hope to make changes associated with codification. So far, we've identified some accounting and reporting changes that may necessitate RBC changes. We're also going to have to do some analysis of whether or not any recalibration of the formula is necessary.

Finally, we come to the two big projects that we've been working on for awhile, the C-3 interest rate risk review and the covariance adjustment for common stock. These areas will be discussed in detail by our panel. Larry will talk about both of

these projects, some of the weaknesses in the current formula, and some of the practical points the regulators need to consider when deciding whether or not they should make changes. Joe Dunn will then talk about our recommendation on the covariance adjustment for common stock and some of the issues involved. Finally, Bob Brown will talk about our recommendation for changes to C-3 and the issues involved, some of which are somewhat controversial.

Mr. Larry Gorski: I've been involved in the RBC process since day one and, more recently, as chair of the NAIC Life RBC Working Group. Cande mentioned the objective of the RBC formula. From the regulatory perspective, it's to establish minimum capital and surplus requirements that reflect risk so that regulators can differentiate between well-capitalized and poorly capitalized companies. We view it as a sophisticated early warning tool. We don't view it as the only answer to questions concerning the solvency of the company.

How do companies view RBC? Do they view it simply as a regulatory requirement or do they use it for internal purposes? Do some companies use it to allocate surplus between lines of business, or in dealing with rating agencies or sophisticated customers? The conflict between the original objective of the formula and how it is actually being used is creating some of the demands on the formula to be changed. We'll get into that as we proceed.

I tend to view the changes that have occurred or will be occurring over the next couple of years in three categories. The first category, updating factors, is not too controversial. The second category is refinements to the formula. That's where we start getting a little controversial. The third category is the desire for consistency between the various formulas. We currently have three formulas: a life formula, a property/casualty (P/C) formula, and the HORBC formula. Why should the life formula and the P/C formula treat common stock differently? Why should the life formula and the HORBC formula treat health-underwriting risk differently? Why should the life formula deal with interest rate risk and the other formulas not deal with it? There's always the desire to keep the formulas consistent while still recognizing the differences between the organizations subject to the formula.

On the updating side, the updates to the bond C-1 factors were accomplished. For the health C-2 factors, I view the work as both an updating process and a consistency process.

I'll spend a few minutes talking about the C-3 project and the C-1 project, primarily from a regulatory perspective. The C-3 component of the current life formula is very simple. You take reserves for different lines of business, categorize them into one of three categories, and apply a factor to those reserve amounts. It's very

simple, which may be reflective of the industry as a whole, but clearly does not reflect any individual company's exposure to interest rate risk. I think Bob may talk about the history of the development of the current approach to C-3, which was based on an analysis of industry-wide assumptions about the matching of assets and liabilities. The strange thing about the formula is that it penalizes companies that are strengthening reserves based on asset adequacy analysis. This makes no sense to anyone. Your asset adequacy analysis tells you that you're, to some degree, mismatched and need to increase reserves to meet the asset adequacy analysis testing. When you increased reserves, what does that do? It increases your RBC. That is just plain backwards. I made that point several years ago, and I think everyone recognized it, but the question is whether anything should be done to correct that problem.

Because of the simplicity of the C-3 component formula, I and others believe that it may encourage companies to do the wrong thing. The RBC formula was developed in an environment where C-1 risk, exposure to junk bonds, and exposure to mortgages, was at the forefront of everyone's mind. A lot of time was devoted to quantifying C-1 risk, less time was devoted to C-2 risk, and probably even less time to C-3 risk.

For common stocks and the C-1 risk, again the current approach is very simple. You take the statement value of common stock, apply a factor to it, and, voilà, you've got your RBC for common stock prior to the covariance adjustment. The work behind the factor may reflect a bit more analysis than the C-3 factor. It was based on the Standard & Poor's 500 index market fluctuations over a two-year time period. That doesn't completely characterize the process. Historical data over a 30-year time period was used, but changes over a two-year time horizon were analyzed. That information became the basis for setting the RBC charge. It assumes a 100% correlation between losses on common stock and credit losses on bonds. But, again, it may encourage companies to do the wrong thing because it doesn't reflect the riskiness of a specific company's common stock portfolio. It's based on industry aggregate risk exposure.

Therefore, the question regulators were facing was, "Is increased precision in these two components needed, desirable, and practical?" Those are the three questions that we ask every time that we're about to begin a project. Obviously the answer is in the eye of the beholder. I feel very strongly that the changes to the C-3 component are very necessary for the reasons I outlined. Other people may argue that it's not practical, needed, or desirable.

For the changes to the C-1 factor that Joe will be talking about, the regulatory response has been a mixed bag. Some of us are probably willing to consider the

change if it's viewed as part of a package that includes the changes to the C-3 factor. When Cande was giving her big picture overview of the RBC formula and how it has evolved over time, she tried to quantify the impact of some of the changes. Some of the major changes, like the C-2 factor, the underwriting risk factor, and maybe some of the other factors tend to bring down RBC. The changes to the C-1 component would do the same thing. So, in terms of overall balance or fairness, we should probably look at some of the projects in combination.

As I said, the answer varies depending on whom you ask. Regulators think it may be premature to be changing the formula now. During our last meeting in a conference call, there was some discussion, that with all the problems in the marketplace these days, maybe it's time to sit back and evaluate the effectiveness of the formula. Is the formula doing what it was intended to do? In fact, at the last NAIC meeting in September, one of the charges given to the Academy group was to evaluate whether the formula is effective. This type of project had been assigned to the P/C AAA Group. I believe it completed the assignment and reported back. Now we're asking the life group to do the same thing. Is the formula accomplishing its stated objective? Are certain refinements really necessary?

When development of the formula was nearing completion, we evaluated the industry as it stood in 1991 or 1992 to see how companies played out relative to the different factors and different threshold levels. Based on that evaluation, we made decisions about where to set the thresholds. With the changes to the formula that have taken place and are expected to take place in the near future, maybe it's time to reevaluate the formula in its entirety to see if the thresholds are set at the right place. That project is going on at the NAIC.

One of my pet projects (or pet peeves may be a better way of characterizing it) is Schedule BA. Schedule BA RBC treatment is driven by schedule BA treatment for asset valuation reserve (AVR), and I don't think it has been given a critical enough look. Some of the problems that have surfaced recently with hedge funds have caused us to scurry around to determine which insurers were holding hedge funds in their portfolios and whether the RBC charges were appropriate for some of the very highly leveraged hedge funds. Maybe there's a need to introduce some kind of beta adjustment (i.e., some other kind of adjustment) to the BA component associated with these types of funds. That gives you a flavor for the kinds of issues we raise with respect to the C-1 and C-3 components.

Mr. Joseph L. Dunn: I've been involved in a project for three or four years now to reassess the common stock factor in the RBC formula. Let me first go over the history of the current proposal to change the treatment of common stock.

MetLife submitted a proposal to the NAIC in early 1997 pointing out inconsistencies in the treatment of common stock between the life and P/C industries and suggesting that this subject merited some study. The NAIC referred the matter to the Life RBC Task Force of the AAA, which studied the matter for about six months and produced a report in December 1997. Following that, Larry put together a list of about nine questions, generally of a technical nature, that were posed to the Academy Task Force. The Academy responded in March 1998 and there was not an opportunity to discuss the response until the June meeting of the NAIC.

Most recently, there was discussion at the September NAIC meeting of the proposal, including a possible small amendment. The last reports I've had is that an executive meeting of the regulators has discussed the issue and everyone expects it to be put to a vote at the NAIC meeting in December.

I will review how the covariance adjustment of the current life formula works. Within the C-1 component of the formula, we simply apply a factor times an exposure and then total everything up. That total is added to C-3 and that becomes a single item that is squared under the radical (square root sign). The total C-2 component is a separate item that is also squared and added under the square root sign. This is equivalent to assuming that C-1 and C-3 are perfectly correlated with each other and also that all the subcomponents of C-1 are perfectly correlated with each other. It also means that the whole ensemble is independent, or uncorrelated, with the C-2 (insurance, i.e., mortality or morbidity) risk.

The P/C formula handles common stock and the covariance adjustment differently. First of all, there's a difference in the factor that's used. It's a 30% factor in the life formula and a 15% factor in the P/C formula, which is, to a large extent, driven by the assumed holding period—two years in the life formula and one year in the P/C formula.

But there was another difference that we didn't focus on until the 1997 proposal: the difference in the treatment of covariance in the formula. In the P/C formula, the risk from equities of all types is treated as independent of all the other asset risks. In the life formula, the equity is treated as being perfectly correlated with the other risks. Therefore, the AAA reviewed a number of time series on market returns on common stock as well as default experience on bonds and mortgages (as well as real estate series) to attempt to determine what the correlations were. As you might expect, the correlations were not exactly zero, but they were not exactly one. However, the Academy chose to preserve the current simplification in the formula— that the correlation is either zero or one.

We did determine that common stock is relatively weakly correlated to bond default experience and mortgage default experience. This justified breaking that piece of the asset risk out as a separate term under the radical, so that the C-1 risk for common stock would be treated as independent of the remaining asset risk, the C-3 risk, and the C-2 risk. Incidentally, we also examined some correlations between common stock and C-3 interest rate risk when we came up with this assessment.

The Academy also looked at the common stock factor itself and determined that, although there were arguments to be made on either side, there was no clear consensus that the current factor was inappropriate. So we decided to continue with the 30% factor.

However, I will immediately point out that the covariance change has a dramatic effect on the RBC result. This change would result in more than an 11% overall reduction in the RBC requirement. The 11% is just for the unaffiliated common stock portion of the proposal. The proposal also suggests that investment in affiliated noninsurers be lumped together with unaffiliated stock. That will result in even more change. Unfortunately, the data to calculate that are not available in the annual statement so we haven't been able to estimate that piece of it yet. In any case, it will result in a large overall reduction in the RBC requirements for the industry, not just the requirement for common stock. The 11% RBC reduction translates to about a 30-point average change in the RBC ratio.

This change would also result in a much lower effective marginal rate for common stock. Even with the nominal rate of 30%, the effective marginal requirement for adding a dollar's worth of common stock to the portfolio is probably closer to 3% of the dollar. That depends, of course, on the company's risk profile. If a company is entirely invested in common stock, then it still has a 30% factor. However, most companies have most of their risk elsewhere, and the way the combination of risk formula (or covariance adjustment) works, the dominant risk tends to dominate the formula.

We observed one other effect. We attempted to determine the size of the effect for companies in various levels of capitalization. In other words, we looked at companies with RBC ratios below 125% and at various deciles going all the way up to the top. We found that companies close to the line or under the line tend not to own a lot of common stock. Therefore, this proposal does not have a very large effect on such companies, or at least not as large an effect as it has for well-capitalized companies.

Basically, this proposal was presented in December 1997, and we received nine questions from Larry Gorski. I'm not including them all and can't get into all the details because some are technical, but I'll try to highlight some of them.

First of all, when we made our original recommendation, we compared the market returns on common stock to default experience on bonds. Bond default experience is not like the market return. There's a very strong serial correlation in the series. That is, if bonds default one year, they're quite likely to default again the next year, so you have that serial correlation. That, in turn, can have an effect on the holding period returns. If you look at the correlation using longer holding periods, they tend to get higher than they would be for one-year holding periods. Also, there is an observed lag between movements in the stock market and bond defaults. Bond defaults tend to trail the stock market.

The net effect of these two items is that, if you adjust the data for the lags and the serial correlation, you can calculate higher correlations between stock and the bond market. However, none of the correlations we calculated came out to be more than 50%. If we preserve the zero/one framework, we still come up with a recommendation that common stock is closer to being independent of the other asset risks than it is to being perfectly correlated.

There are other technical issues as well. There has been a huge surge in the level of structured products that are available in the market and that companies are now buying. By and large, the history for default experience doesn't coincide with the period of availability of structured products, so we don't know what effect that will have on the level of defaults as well as how they're correlated with other types of assets.

Larry alluded to the problem that we might attempt to address with the beta adjustment, that is, not all common stock is the same. Some common stock is a lot more volatile than others. In the AVR, there's an adjustment for this phenomenon that's accomplished by multiplying the 30% factor by the average beta of the portfolio. In other words, a riskier portfolio will end up with a higher factor. There's certainly a possibility that we might want to include that in any overall change in common stock. And there are other technical issues. Does it matter whether you look at default frequency or the amount of defaults? Most of our data looked at default frequency, although we did have some data that related to default cost. Generally, we ended up with the same answer, whichever series of data we used, although the correlations varied to some extent.

Finally, there's an issue I call "the zero/one dichotomy." The original proposal assumes correlation is either zero or one. If we abandon that framework, we would

have an apparently more complicated formula, although as a practical matter it's relatively easy to calculate. Also, we could use empirically observed correlations rather than rough approximations that we're using now.

Then, there are what I'll call "philosophical issues." They're not entirely philosophical, but they're usually described as such. The first one has to do with the purpose of the RBC formula. It's designed to identify weakly capitalized companies, so why go ahead with the change that doesn't move around the relative position of the weakly capitalized companies? It does push one or two companies over the line. It has some effect, but it's not as great as you might expect, looking at the overall industry-wide impact of the proposal.

Then there's the possibility of a link to other proposed changes. Bob is going to talk about one of those proposed changes in the C-3 component of the RBC formula. The framework Bob will discuss could be modified to analyze the correlation between the liabilities and the assets directly. The way that would fit into the framework of his C-3 committee is by a much more elaborate scenario structure that attempts to model the correlations directly. The original Academy thinking on that subject was that it would be phase two of the project. We felt that even the proposal, as we presented it, was a big improvement over the current system and worth making, independent of the possibility that there might be a still better change possible further down the line.

From the Floor: You mentioned that the main difference between the P/C factor and the Life factor is the holding period and that common stock is held at market value. Why should the holding period make that much difference?

Mr. Dunn: It has to do with how fast the company reacts, which is what's being focused on when we talk about holding periods. The P/C rationale is that the RBC statement is done once a year, so, within a year after you assume a risk position in common stock or any type of risk position, you will be certain that there will be an assessment of whether you have too much risk. If there is too much risk, the company could sell stock or otherwise change its risk posture to bring its actual risk within its capital availability. We thought one year was appropriate in this case. However, in the life business, the original feeling was that one year was probably too quick for the average life portfolio decision, because it usually took a little longer. The two-year period seemed to be a more appropriate reaction time in that industry. I don't know if that was correct, but that was the rationale. I'm not exactly a disinterested observer on this subject, so others might take the opposite view.

From the Floor: If your portfolio is marked-to-market, it almost doesn't matter if you actually sold it or not, if you are carrying it at the appropriate value.

Mr. Dunn: It's not that the current value is off; it's that it might change within a one-year period. Even if you have enough capital now, the regulators can't be certain that you'll have enough at the end of the year unless you have risk capital that is over the threshold. That's the whole point of RBC generally. It's not to fund for risks that have already come to pass, but for possible future fluctuations.

From the Floor: I don't understand why you have to cover the two-year period.

Mr. Dunn: I'm with you, but then I only have one vote.

Ms. Olsen: I'd like to add something. There were some other assumptions that differed between P/C and life in developing the common stock factor. I can't tell you what the effect was of those different assumptions, but in the P/C formula we used a 90% confidence level and in the life formula we used a 95% confidence level. We also took measurements at the end of each year for the P/C formula and monthly for the life formula.

Mr. Dunn: That makes a significant difference.

Ms. Olsen: Most of the people who have looked at this say you can argue things either way because there is no obvious right answer.

From the Floor: It's interesting because the rating agencies are using factors close to 30%. I don't know how those factors were developed or if they relied quite a bit on what the NAIC did.

Mr. Gorski: Yes, I think that was the case in this situation.

Mr. Dunn: The 30% factor, incidentally, is remarkably close to the old AVR factor, so I don't think that was entirely an accident.

Mr. Robert A. Brown: Larry gave you a little background on why it's worth looking at the C-3 component of the life RBC formula all over again. The C-3 component within the current formula assumes reasonable immunization for the investment products and looks at how well protected they are against customers taking money out at book when rates go up and things like that. There's also an adjustment for cash-flow testing to reflect whether or not the reserves had already been tested for sturdiness. All of the factors were pretty low, and none of them assume that the company has made an intentional decision to make a big interest rate bet.

And that may well be true on average. It may be true for the typical company that interest rate sensitive products are pretty well matched and well protected. But

there is a concern or a hypothesis that—particularly when RBC started putting on fairly sizable factors for taking substantial credit risk to get rates—some companies were encouraged to replace that strategy with taking some interest rate risk instead. For instance, buying 20-year bonds to support a five-year GIC or buying mortgage-backed securities to support a five-year GIC is a situation where the credit may be very strong. However, if interest rates go to the wrong place at the wrong time, there could be losses. And there's nothing that puts much of a surcharge on that in the current formula.

Again, there's also no annual statement data that allows you to test that hypothesis one way or the other. No one, other than the regulator who's reviewing the actuarial opinions, which of course is confidential, can make any kind of an assessment about the degree to which that sort of thing is going on. But even if it's not going on at all today, it could go on, and the formula is not very sensitive to that. The project was launched to try to find a way to do a better job of identifying situations in which interest-sensitive products are well protected and situations in which they are not, and distinguishing those in terms of the RBC that is put aside for them. That's the genesis of this project.

It has been going on for about a year and a half now. Everybody on the project felt that if we wanted to get at that, we needed to do something like asset adequacy analysis and cash-flow testing, or some kind of stress testing to be able to determine, given this product in that portfolio, what happens if interest rates go up or down. But a very small number of very simple scenarios does not give you a very good metric. It may show you that the asset's pretty long compared to the liability, but it still doesn't tell you what an appropriate RBC factor should be. It just tells you that you have a duration mismatch or something. So we felt that scenario testing for a larger number of scenarios, and using that as a basis for developing a metric, was the only reasonably reliable and nonevadable means to determine a new approach.

Part of that was identifying which products are interest-sensitive and which don't really have this risk to the degree that it's worth a lot of testing effort. We then developed a testing platform of 200 stochastically-generated scenarios, and the various people on the subcommittee ran those 200 scenarios against one or several products that their company sells, for which they had cash-flow testing models. They then ranked the 200 outcomes, from the worst scenario to the best, to examine the ranges one would get for capital requirements. They also wanted to see how that varied if a duration-matched portfolio was maintained, but the company did things that messed up portfolio convexity, such as going to a barbell maturity distribution or a single-point distribution, or putting a lot of adverse collateralized mortgage obligations (CMOs) in the portfolio versus a nicely laddered portfolio of callable bonds.

We also looked at what happened when we ran a portfolio that we knew was a couple of years too long or a couple of years too short against a variety of interest-sensitive products: single-premium deferred annuities, non-participating GICs, or immediate participation guarantees. How did this come out? The numbers showed sensitivity to all the things you would expect to matter. It showed metrics that appeared rational compared to what we had done to the mismatch or the degree of embedded pass-through in the product, versus the degree to which it's a fully guaranteed type of product. If we could find a way to generate results like that, we thought it would be a pretty good metric and a good replacement for what we had right now.

That's good, because it confirms our bias and the kind of approach that we wanted to take in terms of producing a set of believable numbers that appeared to be an improvement. The only issue remaining at this point is whether there is a practical way to accomplish that. The idea that every company in America needs to test every interest-sensitive product every year by running 200 stochastic scenarios impressed most people, including I think all the members of our subcommittee. But, if we don't figure out a way to boil it down, then we have a nice theoretical answer that we would never expect people to implement. For now, it's a question of finding practical ways to do that. Along the way, a number of very important nagging issues have been brought up that need to be addressed and resolved once the basic framework looks the way we want it to.

The biggest issue that remains, or at least one of the most critical, is a way to reduce the size of the scenario set to a more practical number, and we are working on various numerical approaches to do that. If you have 200 random scenarios, many of them never turn out to be interesting. They're just interest rates going up a half a percent, going down a half a percent, and not changing for a while, so there are no real stresses. You could take those out and then recognize that what's left is not uniformly distributed across the whole universe, that it is just the tail. Then you could save a lot of testing without throwing away much of anything. So we're trying to find a smart way to do that and, hopefully, throw out quite a few scenarios.

We hope to find 50 that give us close to the same answer as 200. Maybe we'll even find a smaller set that gives not as finely calibrated an answer, but an answer that is almost always a little bit too conservative. Then, a company that had a small amount of interest-sensitive business might choose to do the simpler testing and use those results. The result would probably be too high, but it wouldn't matter to the company because it still would produce a very livable capital ratio and they wouldn't have to do the extra work. A company that had a great deal of interest-sensitive products probably would not be able to live with that degree of coarseness

and would probably do the more refined approach. But it would be more worthwhile in that instance because there would be a lot more money at stake.

The hope was to come up with a small-set method that's approximately right and a little bit too conservative, and a medium-set method that's approximately right, and let companies choose depending on their size or their exposure. We also need to nail down a final list of products we think deserve to be on the interest-sensitive product list. We need to think about whether we need some sort of a materiality standard that says, if you have less than such and such of a certain product, forget it.

Right now, RBC numbers are in the blank to be filed every year, and the kind of testing process we're talking about has the potential to be a reasonable amount of additional effort on top of what already goes into the process today. If you had to use December 31 assets and December 31 liabilities to do that work, it's not clear that you would be able to make the filing deadline. However, if you use September 30 data, it's substantially out of date at the time of filing.

How do we find something that everybody is comfortable with? One possibility would be to say that this work has to be done within such and such an amount of time after year-end, but beyond the time that the blank is filed. Then the results get submitted separately later rather than being included in the blank. Or there may be other approaches to doing it on some basis on September 30 and then reflecting major changes later. This is one we're still working on that has the potential to be a fairly significant issue.

There are questions about materiality and about who needs to do modeling. Are we going to have safe harbor factors that you can use to avoid doing any modeling? What is appropriate treatment for companies that currently file a Section 8 opinion and, therefore, are doing testing now, versus Section 7 companies that don't? Does that mean they have to start? All of these things need to be addressed. If we could find a 10-scenario set and you'd be willing to live with that result, maybe that's less of a burden to a company that's not currently doing testing than a 50-certain scenario set would be.

We get diverse opinions on how much harder it is to ramp up from 10 to 50. Some companies think it's about four times as much work and others seem to think that, once you set up your model, it's just a matter of letting the computer run all weekend. Different companies do these things in different ways.

One thing I didn't mention is what we are measuring when we run these scenarios, and rank them and find the worse one. We're measuring the year-by-year accumulated statutory surplus in the worst year. It's actually the worst year when

present valued back to today, so if year eight was 3% worse than year seven, year seven would still be the worst year. Unlike the asset adequacy analysis, which just asks if you have enough money at the end of the term, we're looking at the ups and downs along the way to see if there are periods when the capital conditions take the hit. By using the actual product, we are taking into account the margins already embedded in the reserves, the pricing, and so on. Therefore, the effect that Larry mentioned, of strengthening reserves and seeing the RBC increase because we're doing a factor off of the reserves, would not be the case. If I'm testing my reserves and now have more sturdiness and resiliency in those reserves, then I should do better in this testing and more or less offset my RBC, which would appear to be the more logical result.

One of the questions then becomes, how do I put several products together? We all agree that an interest rate going-up scenario has a bad result for product A and an interest rate going-down scenario comes up with a bad result for product B. I shouldn't have to add those results together to get my RBC because both of those can't happen during the next 20 years (i.e., during the period starting now). Therefore, I want to come up with the scenario set that gives me the worst combined result in some sense.

The issue becomes, how do I combine them? If I have one product that is incredibly profitable and I'm allowed to take that profit stream into account in combining products, then I may be able to say there's no interest scenario that causes a loss. It isn't that it doesn't cause me a loss on my GICs, but that this old permanent stuff is spitting off margins to cover anything I can think of happening. That degree of aggregation seems uncomfortable. However, aggregating a long-liability product and a short-liability product so they're sharing a medium-liability portfolio is essential.

How do we get an answer about the complementary nature of products and portfolios without bringing in big profit streams that have nothing to do with interest rate risk, interest margins, or anything else? That's one of the things that we still need to wrestle with and refine, and we have not done that yet. One of the big issues that has been a source of discussion and debate for quite some time is that, in doing modeling, not only do I have to show how the assets are going to behave after we go through all these scenarios, but I also have to show the cash flows on my liability side. With interest-sensitive products, the cash flows on the liabilities often will depend a lot on interest scenarios, credit advantages, etc.

My assumption may very well differ from somebody else's assumptions on a very similar product in a very similar portfolio. This would mean then that we will get substantially different answers when we run these stress tests. Is that okay or not?

And if not, how do you fix it? My model is all built around my assumptions. It's also what I think is the best actuarial reality. Saying you have to use some standard assumptions doesn't sit very well at all. But, to do otherwise makes it seems as though we're measuring different companies by different yardsticks. There's the dilemma.

One of the approaches that has been suggested is to use your own assumptions, but estimate how much difference it would have made if you used the standard assumptions. If it turns out to be critical and would put your ratio close to a regulatory control level, then you would have to run some full blown standard set of assumptions as well. That would avoid the effort of running double analyses for most companies most of the time, and it would still allow you to say when it gets down to establishing whether this company is above or below regulatory control level, that you're using a common standard.

That gets away from the different-yardsticks-for-different companies point of view, but it doesn't deal with the problem that, for my products and my company, the regulatory standard is far different from the actual historical experience that I can demonstrate. Should I have to ignore all that in something so important? This needs further debate. It's one of the things that we were hoping to get a little audience input on today. It's easy to understand the dilemma. It's easy to understand the discomfort with different people using different assumptions. One viewpoint is that you may be showing differences that are not true differences. This may be the viewpoint from companies close to the line, and it may put a substantial amount of pressure on the actuary, perhaps more pressure than you want.

However, coming up with an assumption set for all interest-sensitive products that reflects all the things that matter—in terms of how these things respond and behave and so on—seems to require some level of genius that we haven't discovered yet. If you're doing scenario testing, you have to reflect what will happen on the liability side as well as on the asset side. But for something like CMOs, there are standard models for callable bonds that probably use pretty much the same approach. We need to check that out. Specifying an approach to use in that case is probably not as big an issue anyway. The liability-side standardization is the real hard one to follow.

So that's the approach we're taking and those are some of the issues we're working on. I didn't mention all of them. We're trying to move this project along a little faster by assigning these various issues as white papers that would outline the pros and cons and a tentative recommendation. Then we'll get the whole group on a conference call and debate them. This way, we can have something tangible to

work on and different people are spending their time initially focusing in on different topics.

Ms. Olsen: Bob, do you need any extra help on any of those papers? I was just wondering if anyone here wanted to volunteer to help.

Mr. Brown: We haven't turned anybody away yet. Even if you have some thoughts that might be helpful, send them in. We're trying to be as open-minded as possible while trying to come up with an answer that is more reflective of the actual product and the actual portfolios than any simple set of factors would appear to be able to be.

Ms. Olsen: I'd like to see first if Larry has any comments on any of the issues here. Then people will get the benefit of hearing some regulatory views first.

Mr. Gorski: I'd like to focus in on the big issue of standardized versus customized assumptions. One of the frustrating parts of that issue is, although it's clear that, on a starting basis, two people could be given the same circumstance and develop different assumptions for very good reasons, you would think sooner or later those differences would come together. It seems that one of the things we're not thinking about in this whole process is a feedback loop. We start out with different customized assumptions, but built into the RBC mechanism would be a requirement to use your experience to bring the assumptions together. That's one way of looking at it.

Another way is to require everyone to use the same standardized assumption initially, but allow people to deviate over time as experience emerges for the assumption that's under consideration, primarily the lapse assumption. It's hard for me to conceive of something being called an actuarial science allowing for differences to go untested and unmeasured without the benefit of feedback being used in the analysis process.

Ms. Olsen: Does anybody else in the audience have particular questions or opinions with regard to standardization?

From the Floor: I have the impression, and I'm not involved in this stuff, that certain companies do not use the results as a measure of what that means in the way of RBC. They use a factor of as much as 200% or even more of the minimum amount. One of the problems I see with that is, if you're saying you need 200% of the minimum to make you feel comfortable, are you somehow denying participating policyholders some of the distribution surplus that they should be getting?

Mr. Gorski: I got a bit lost in that question or comment. Maybe a few questions can help me understand the situation better. You seem to be setting up a situation where a company is using the statutory RBC formula for some internal purpose, maybe for distribution of earnings to policyholders. If that's the case, I think the company has to recognize immediately that the formula was not designed with that purpose in mind. The formula is the result of compromise and simplification. What we're talking about here are refinements to the formula that would make the formula more responsive to the companies actual risk exposure and that may, in some cases, open up more earnings for distribution. I don't know if that's answering your question, but I'm not sure what your question was either.

From the Floor: I think you're doing the reverse as a practical matter. I get the impression that a number of companies are saying, at least in the old formula of RBC, that they were not satisfied with having their companies' capital at that level, and would require at least twice that amount. Therefore, they were building either toward that or exceeding it at some point. I question whether in doing that they were then withdrawing funds that might properly be used for other purposes, such as dividends. I think what they're trying to do is use funds to grow faster, to increase their assets. It certainly sounds like it.

Mr. Gorski: I suspect that companies are using the formula for purposes other than what it was intended for, and if that's the impact, I think the company is making a decision based on improper information. I don't think it's the fault of the formula. It's the fault of the company's decision-making process and its unwillingness or inability to develop a more rational approach to distribution of earnings. If the company was using the RBC results multiplied by two for some reason, the upshot of what we're talking about here, at least on the C-3 side, is that it may open up some additional earnings. This is because, if a company is managing its investments well relative to its liability exposures from an interest rate risk standpoint, it would reduce its required level of surplus. If it's not, the level of surplus is going to increase it. But if the whole issue is to use the formula and then ratchet it up, that's simply not using the formula properly.

From the Floor: People are using something like 150–200% of the NAIC formula to get the rating they want. That's the driver.

Mr. Brown: When the RBC formula first came out, the vast majority of companies were well above the 100% mark and had capital standards that they had worked out themselves. The RBC formula and ratio is one of several things a company can look at in analyzing how it's doing, but I don't have the impression that people are saying it pushes them to a new higher capital requirement than they were using before. To the degree that it makes them look at their old capital formula and

realize that they hadn't quantified the risk for a couple of things, that would be good. It would be good just to call management's attention to it. But, even though companies are generally trying to maintain a ratio above 100%, I'm not hearing that they're trying to maintain a much higher level of capital just because of RBC.

Mr. Gorski: Built into your question I think was the hidden assumption that this new approach to the C-3 quantification is automatically going to result in higher RBC. I don't think that's a correct assumption because, if a company is well managed, RBC may be reduced. It may not always go up under this new approach.