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**RECENT NAIC DEVELOPMENTS RELATED
TO MSVR AND RISK-BASED CAPITAL
AND THEIR IMPACT ON INVESTMENT STRATEGIES**

Moderator: JOSEPH H. TAN
Panelists: PAUL F. KOLKMAN
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Recorder: EDWIN R. REOLIQUIO

- The new asset valuation reserve (AVR) and interest maintenance reserve (IMR) requirements
 - New formulas
 - Comparison with the Mandatory Securities Valuation Reserve (MSVR) requirements
- Update on the risk-based capital (RBC) requirements
- Impact on the company's investment strategies
- Issues/concerns

MR. JOSEPH H. TAN: The AVR and IMR changes are effective for 1992 and affect only life insurance companies, as property and casualty (P&C) companies do not have MSVR.

Bill Ward is the director of state relations for financial matters for Aetna Life and Casualty. He will discuss the purpose of the new reserves, their basic structures, the funding requirements, and their impact on statutory financial statements. Mr. Ward is chair of the NAIC AVR IMR industry advisory group. He's also the general chair of the National Association of Insurance Commissioners (NAIC) invested asset advisory group, responsible for reviewing all investment emerging vehicles. He has also chaired several other NAIC advisory groups, and has chaired the major trade associations, banks, and investment committees.

Actuaries are familiar with such concepts as required surplus, target surplus, benchmark surplus, and C-1, C-2, C-3, and C-4 risks. Such concepts are now adopted by the NAIC, and have been incorporated in the RBC formula proposals. Some of us were even involved in the NAIC survey related to the suggested RBC formulas. At the September 1992 NAIC meeting, the RBC working group, chaired by Terry Lennon of the New York Insurance Department, had proposed to expose the RBC formulas for life insurance companies for industry comments. These formulas, together with a proposed NAIC model law related to suggested regulatory actions, depending on a company's RBC levels, will be further discussed in Boston next month, with the likely adoption before year-end, to be effective 1993.

Mr. Paul Kolkman is vice president of finance at IBS Life Insurance Company. He will bring us up-to-date on the developments related to RBC and will discuss the issues related to the current proposals. Paul is vice chair of the RBC industry advisory

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committee. He's also chair of the life committee of the Actuarial Standards Board, and he is an Academy board member.

He will tell us what impacts these AVR, IMR, and RBC requirements have on a company's investment strategies. Is it a good investment strategy to unload the more risky assets? How about new asset acquisitions or new insurance products? What impacts will these have on a company's profitability and financial statements?

To give some investment advice, Alfred Weinberger is director of research in the bond portfolio analysis group of Salomon Brothers. He has published two papers on RBC: "Starting to Think about RBC" and "RBC Implications for Investment Values."

MR. WILLIAM D. WARD: I've been asked to provide an obituary and announce a birth. The obituary is for the MSVR. I hope that our product, the AVR, and the IMR will survive as long as the MSVR. There will be a transition or phase-in rule for U.S. government beginning this year at the rate of 50%, then on to 75%, and 100% thereafter. A proposal was recently made to the NAIC to delay the funding of the IMR until October 1, 1992. The executive committee of the NAIC rejected it, however, so I'll describe what will occur. We will take the full gains for 1992, and the IMR will be in effect for all of 1992, with the exception of the U.S. government, which will be transitioned at a 50% rate. Once the realized capital gains are captured in the IMR, they are amortized over the remaining life of the assets sold. This is different, of course, than the previous MSVR treatment. A seriatim or group method or another approved methodology that is consistent with the seriatim approach or consistent with your investment-income allocation method is used. Note the instructions, with respect to determining the remaining life for collateralized mortgage obligation (CMOs), real estate mortgage investment conduit (REMICs). The securities evaluation manual's practice and procedures and the annual statement instructions probably have sufficient detail to enable you to develop the remaining life.

The realized capital gains on derivative instruments arising out of interest rate hedging are allocated or captured by the IMR. Book-value separate accounts are required to have an IMR. If you have assumption reinsurance, or if you sold a block of business, or if you have a substantive withdrawal and gains or losses result under the conditions set forth, consult the instructions. Those results in gains or losses may be exempt from IMR treatment. Currently, the IMR has a zero floor. We are not permitted to hold negative IMR. The advisory committee has been working on a proposal for regulatory consideration to permit the IMR to not be subject to the zero minimum in 1993, and subsequently. If it is adopted, if we are successful, negative values will require an actuarial opinion. Right now we're talking about a Section-8 opinion, stating the policy and claim reserves reduced by the negative IMR to make adequate provision for all liabilities.

The AVR is the reserve that accumulates all credit-related capital gains and losses in net of taxes. Here again, we have a transition or a phase-in rule. Even though we are moving from the MSVR into the AVR, because we are adding the remaining invested assets that are in mortgages and real estate, it was deemed advisable to phase in the AVR so that the annual contributions would be phased. It begins this year at a 10% rate, ultimately reaching a scheduled 20% rate in three years. The contribution is calculated based on the excess of the maximum over the current

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balance in each subcomponent. Voluntary contributions are permitted, and for this year, at least, there is a limited ability to make transfers between the subcomponents. We hope to be able to liberalize that provision to permit transfers between the subcomponents beginning in 1993. Presently, transfers between the default and the equity component are only permitted with regulatory approval.

With regard to derivative instruments, realized gains or losses on portfolio or general hedging instruments are included with the assets that are hedged. This is the only instruction we have in the series evaluation manual or in the annual statement instructions. The committee is working on this whole subject of derivative instruments, and we hope that we will be able to develop an acceptable proposal and have it adopted for the 1993 annual statement. But at this juncture, we are essentially talking about these two forms of derivative instruments. Again, the minimum value for each subcomponent of the AVR is zero. As with the MSVR, it does not have negative AVR.

Table 1 illustrates the AVR maximums, and the factors are essentially those for 1992. I do not expect any significant changes for 1993 year-end. After study, we hope to be able to have some significant changes for mortgage loans and real estate, for 1994 year-end. By the way, we are coordinating our effort on the factors on the maximum with the RBC study group to ensure consistency.

TABLE 1
AVR Maximums

Invested Asset	Reserve Maximum (%)
Bonds	1-20
Preferred Stocks	3-22
Mortgage Loans	1.75-10.5
Common Stocks	0-30
Real Estate	7.5
Other	(Based on nature of asset)

Very briefly, the bond factors are similar to the former MSVR. I think you'll recognize the 1-20% range. Preferred stock has been modified to a new rating system. Those are 2% above the present bond factors, and they were designed to be that way for the six categories of preferred stock.

The mortgage subcomponent is more complex. This is an experience-rated factor based on the insurer's experience with respect to the industry factors developed from NAIC studies. You will construct the trailing two-year average. We will be adding restructured loans in 1993 in developing that factor. Even though they appear in the 1992 blank, the formula will officially recognize them with respect to the 1993 statement year.

The heart of the mortgage-loan factor is based on 3.5%, which was developed through a relationship analysis of the American Council of Life Insurance (ACLI) data and a relationship with the bond factors. It's approximately between a Triple-B and a Double-B factor. It is then modified by your own experience, with upper bounds of approximately 3 times that 3.5, or 1.5 for the lower bound.

The equity component is probably the most interesting part. Notice the 0-30% factor, these are not the MSVR factors. For publicly traded securities issued five years or more, the factor for the common stock will be 20 times a beta factor, subject to a 15% minimum and a 30% maximum. This factor represents a significant deviation from prior MSVR rules. There was a review of historical data regarding fluctuations and prices of publicly traded common stocks from that review. It was determined that the 20% maximum AVR factor provides sufficient protection against fluctuations and value with a confidence factor in excess of 75%. We were influenced by the Ibbotson & Sinquefeld study that's been recently published. To ensure that the particular insurer's portfolio provides sufficient diversification, a publicly held common stock factor requires the application of the multiple debit based on the index.

We have provided for a safe harbor of 30%. For publicly traded secure corporations issued within the last five years, there's a flat 30%; it is not a justified beta. For nonpublicly traded corporations it is 25%, and for subsidiaries control affiliated corporations, or life companies, as with the MSVR, it is 0%. If you own a P&C insurer or an investment subsidiary, 20% is the factor. For any other unlisted or unmentioned form of subsidiary or controller-affiliated corporation, the factor is 25%.

The reserve factor for our real estate is 7.5% of statement value. We're using the look-through approach for schedule BA assets. There is a detailed schedule based on the kinds of assets in the schedule BA. We inadvertently omitted the BA, the bond, mortgage loan factors which have been corrected in the 1993 blank. We hope to reclassify that schedule BA into the various subcomponents, of course, with the nature of the underlying asset.

How are we going to initialize? We talked about the funding requirements and the maximums. This year we will be initializing the IMR reserve, and of course, the AVR. The IMR begins with zero. There is no advance. But, we must initialize the AVR with the 1991 year-end MSVR values. And that can be done either two ways. It can either be done by taking the bond and preferred MSVR component and simply initializing the bond preferred subcomponent of the AVR, and taking the common stock component and initializing the common stock subcomponent of the AVR. Or you may do it on a pro rata base, but you must use the entire statutory MSVR for the initialization of the AVR. If you haven't thought about how you're going to initialize that, it will be well served to model both results on your particular facts and circumstances. Many insurers will probably elect to use the pro rata basis, particularly if they have a mortgage loan or a real estate portfolio.

You may use another amount to initialize the AVR if you're holding any voluntary reserves. Many of us are holding either mortgage or real estate, or both, as voluntary reserves. You may initialize those. But once you initialize them, once you've contributed those voluntary reserves to the AVR, you cannot withdraw them. Another way is to handle the addition of the voluntary reserves through the voluntary contribution. Again, I suggest that you model, because the answer is quite different, depending on which methodology you use. But again once those voluntary reserves are established, they're irrevocable. You cannot take them out.

In the financial statements, the IMR will be presented/disclosed as a benefit reserve or a liability item (page three, line eleven, point four). The AVR will be reported like the

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MSVR now is, as a miscellaneous liability. The amortization of the IMR gain will be included on the new line four, so that in essence, the net investment income and the amortization into the gains from operations from the IMR are essentially in the same similar or related position. Line 32 realized capital gains will be net of the contribution to the IMR. We will in effect segregate out or allocate out the capital gains from the IMR, from the line 32 net. What about the separate accounts? If the nature of the separate accounts is such that an IMR or an AVR is required to be shown in the blank, it may be shown in the separate account blank. Or it may be shown in the general account blank. If it is shown in the separate account blank, appropriate schedules must be added to the blank. They are not there presently, we have not provided for the addition of the separate account IMR or AVR for that blank.

The relationship between the AVR and the IMR to RBC needs to be understood. The AVR is intended to provide for expected default risk. RBC is intended to provide for catastrophic default risk. The AVR will be added back to surplus, determining the adequacy of surplus under RBC. The IMR will be treated as a liability. While not directly related to RBC, neither the IMR nor the AVR will be treated as liabilities for GAAP purposes.

There will be an impact on investment strategies. With respect to asset allocation, I expect the issue of the AVR and the AVR to real estate mortgages and loans, will result in the desired shift away from real estate and mortgage loans and below investment-grade securities. I hope that that shift would be to investment grade securities. We expect many more investments in residential and mortgage-backed securities, structured securities, equity-sensitive securities.

What can one do this year? Are there any opportunities left? Well, if you have a large government security, a U.S. government security portfolio, and you have significant gains, you might want to take advantage of the 50% phase-in rule, with respect to the IMR. I'm sure Fred is going to develop many more strategies one might employ. So in summary then, may the MSVR rest in peace. It has been replaced and given rise to two new reserves, the AVR and the IMR. The AVR addresses credit-related risk of specific asset types. It also includes provisions for mortgages, real estate, and other invested assets. The IMR includes noneconomic gains and losses, and it is amortized into income over the remaining life.

With the adoption of the AVR reserves, I anticipate shifting from real estate and mortgage loans into a state of some form of investment-grade, corporate long-term debt, securities and so forth.

MR. PAUL F. KOLKMAN: Switch technologies here. I will present the brief history and background of the NAIC RBC project and the changes that have occurred to the formula in the last year, the result of testing and the comments received. We'll summarize the proposed model law and then present a couple of implementation issues and gray areas.

RBC is an attempt to set a capital requirement, either internally by a company or externally by regulators. Rating agencies also do similar things. The capital requirement is going to vary with both the nature of the risks and the size of the risks that a company has on its balance sheet. Historically, capital requirements for life insurance

companies have been small fixed-dollar amounts. This is an attempt to just make the capital requirements vary a little bit more with the size and the nature of the risks. The recent interest in RBC is driven by some of the more prominent insolvencies: First Capital, First Executive and Mutual Benefit. The belief was, had an RBC mechanism been in place, it is likely that emerging concerns would have been addressed by regulators sooner. Perhaps the cost of cleaning up the situations that developed would have been reduced. The NAIC got involved actively, and a couple of states led the way. New York and Minnesota had formulas in various forms of development. Wisconsin, Utah and others have older-generation formulas. But the NAIC got involved actively and seriously in 1990, with a 121-page project culminated in part of the industry advisory committee in December 1991. But the first third of it, with the summary, the formula, is generally good reading, and very little has changed. It went through the extensive testing and comment period during 1992. Diskettes went out to each of the companies licensed in the various states sent by the insurance commissioners of the states. They were submitted to the NAIC, but they cleaned up the data a little bit. The data was put in the data base. We received 130 plus comment letters from people. As a result of that, a number of changes were made to the formula. As a result of those changes, a final package was presented by the industry advisory committee to the NAIC working group. It was adopted in September for formal exposure. The public hearing will be in November, and I fully expect it to be final in December.

The most significant changes were to the bond size and concentration factors. There was an issue in the original formula of the bond-size factor, as to how to treat government agencies such as Freddie's and Fannies, and the mortgage-backed securities that come off of those. We decided that they should be excluded from the size count of a number of issuers. Those assets should also be excluded from the pool of assets that's rationed up by the bond-size component. There were similar issues around government and mortgage-backed securities, and a decision was made to just exclude all category-1 bonds from the concentration factor. For some companies that excludes some very, very sizable positions in some securities with very low credit risk, and we actually found that it raises the RBC required, because it kicks up smaller assets into the top ten, which get a double factor. But normally, they were assets with a much higher base factor than the category-1 bonds.

There were some changes in the experience-rated group pension business and in separate accounts with guarantees. There were many issues regarding these accounts passing certain amounts of investment risk to the customer. Perhaps they shouldn't need a C-1 component; the original formulas had a 50% reduction in their RBC component for C-1 for certain separate accounts with guarantees. In the end, we lumped these types of features together. There's no C-3 component on experience-rated group pension business and separate accounts with guarantees. There is a C-1 component, but there's no C-3 component if there are guarantees of 4% or less. There's a full C-3 if there are guarantees of 4% or more. There are a number of mortgage-factor changes. Residential mortgages are in a different risk category than we'd originally put them. They're in 0.5%. We also changed the factor for farm mortgages from, I believe, 5% in the original exposure to the same category as commercial mortgages. And again, both of those changes were based on some very good research by people who knew a lot about those types of mortgages. Basically the research justified the changes that were made.

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The major C-2 change was for group dental and the servicemen's group life insurance (SEGLI) and federal employees group life insurance (FEGLI) business. The group dental is going to be swept in with the usual and customary medical coverage. For most blocks of business that's going to be a reduction in the requirement. SEGLI and FEGLI are going to have a C-2 component that's the lowest mortality factor. SEGLI and FEGLI are both very, very large groups. The mortality factor for a small company with a small piece of that pool shouldn't be rationed up for size.

Preferred stock to affiliates is going to be treated as common stock. It was viewed as a potential area of abuse. A company could recall its common stock and issue preferred stock.

The original formula had C-3 factors, varying by types of business, and if you didn't perform certain types of testing on the adequacy of your reserves, it was a 50% load on that. It's simply been recharacterized to the higher factors with a one-third discount for a clean Section 8 opinion (Section 8 of the model regulation).

With the advent of IMR & AVR, there was no long-term theoretical reason to allow voluntary investment reserves to be added back to surplus. But a number of companies had some very sizable voluntary investment reserves. They were going to move to the AVR over a period of time. And so through 1995, voluntary investment reserves will be "add-backable." Also, as a transition issue, since a property-casualty formula isn't used, a life insurance company with a P&C subsidiary can carry that at 50% of carrying value of RBC component of 50%. A sensitivity test was added for 10% of parent, subsidiary, and affiliate transactions, excluding common stock holdings, which are already in at 30%. Another sensitivity was added for capital contributions in the current year. It will refund a number of companies that appeared healthy after the fact, because of a continuing stream of capital contributions offsetting losses.

To understand the law, you really need to understand its intent. The intent is to identify weakly capitalized companies in the hope that regulators can intervene long before the situation becomes very expensive and unfixable. It was an attempt to increase the powers of regulators to act in situations as RBC amounts began to deteriorate. Also we needed an absolute floor on the capital of life insurance company that was somewhat higher, and more dynamic than the current requirements.

Once its state adopts the law, a company must file the RBC report, which is basically a diskette, with both the state and the NAIC. The calculation is for the formula and instructions that are adopted by the NAIC. Calculate base-adjusted capital, which is 50% of the risk-adjusted capital. All of the regulatory triggers work off the base-adjusted capital. That structure may or may not survive through December, but I think the basic activity will be there. This is the current structure in the proposal that was adopted in September.

Last, all of the comparisons are to a company's total adjusted capital. Total adjusted capital is surplus plus AVR, plus voluntary investment reserves, if any. RBC is per the formula instructions. Base-adjusted capital is 50% of RBC. That was chosen because that's the level at which a regulator can take control of a company. And so that sort of really is the basic floor.

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There are four trigger points, each with a name. The first one is the plan level, between 150-200% of base-adjusted capital. The second one is the action level, 100-150%. The authorized control level is 70-100%. The mandatory control level is below 70%. What do those levels mean? At the plan level, again that's between 150-200% of the base amount, the base amount being the level at which the commissioner is authorized to take control of the company, the company needs to file a plan with the commissioner. The plan needs to specify what the company believes to be the conditions that led to its falling into this range. Lay out some corrective actions, then do some financial projections with and without the corrective actions. The commissioner needs to accept the plan, approve it, or disapprove it. But that's about the extent of it.

Below that is what the regulators call the action level. That's between 100-150% the suggested capital amount. The commissioner must conduct an examination or some kind of analysis at that level. The commissioner must act. The commissioner must go in and take a look at the company and decide whether the company is operating at a capital level or in a manner that is acceptable. If not, the commissioner can issue a corrective order. It varies by state; some states call them corrective orders. The commissioner basically issues an order to change something about the way you're conducting your business.

At the first level, the company needs to act. At the first level, the company needs to file a plan. The commissioner does nothing but read it, maybe talk to the company, and approve or disapprove it. At the second level, the commissioner needs to act. There's no additional burden on the company. But the commissioner must go in and do something. The third level is down between 70-100% of base-adjusted capital. The commissioner is authorized to take control of the company.

The commissioner must take control of the company at the mandatory control level. There's about a 90-day window in which things can get fixed up, or you can put a plan in place to raise capital or shrink the size of your balance sheet. But basically, except for that 90-day window, the commissioner must act.

There's a one-year phase-in period in the model. Again it will be adopted in December. For anybody adopting the model during 1993, one of the four levels of action is skipped. In other words, there's no mandatory taking control of the company. The bottom one becomes the third one, the third one becomes the second one. At level B, you'd file a plan for 100-150%. You really wouldn't do much of anything for 150-200%.

A very big issue is confidentiality. The RBC report diskette and all that goes with it is going to be confidential for the model. Also, any plans or reports filed by the companies or any correspondence back and forth can and probably should contain proprietary information on prices, markets, and expense-reduction programs. They could also contain information about issues of securities. It *will* be held in confidence. There's a provision in the law that says if a state other than your own state asks you for RBC information, you should give it if it has exemptions in its law, from the freedom of information act. Now it is going to be very difficult to say no to a state, but having that in the law will probably give people a little more comfort in perhaps deleting some things from their report if they know that it could become public. Also,

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any use of the information by an insurance agent, an insurance broker, an insurance company, or anybody engaged in the insurance business, primarily related to the sale or the conservation of business, will be prohibited. That doesn't mean that the information is publicly available but it can't be published. It just says that agents and companies can't use it in a sales process, because the principal concern is that it probably wouldn't be fair. The information was never designed to rank or rate companies above minimum capital levels. It just doesn't have the precision, and it really shouldn't be used for that purpose.

There are two public numbers. The five-year historical exhibits will show companies' total adjusted capital, and the minimum adjusted capital, 70% of based-adjusted capital. Again, the actual numbers shown could change as part of the hearing in November and final adoption in December. I suspect that total adjusted capital and base-adjusted capital are largely what people want.

Finally, we expect it to be effective for 1993 statements. It will be in your 1993 statement published in 1994. Some states will adopt the model in 1993. Whether a state adopts it, the two numbers that go in your annual statement will need to be there. The NAIC plans to send out diskettes again during 1993 to collect data based on 1992 statements, very similar to the way it was done this year. That will help debug the package and make it more user-friendly. It will start to collect data for future possible changes to the formula. The NAIC is also planning to set up a permanent task force, to consider changes to the formula on the same cycle as the blanks. Again the final numbers could get in the blank, but the form and instructions will be separate and distinct from the blanks.

There are some gray areas in data that was submitted. There probably aren't two people who do their annual statements the same way. And so, when you go to specific lines looking for specific things, sometimes you don't get what you want. This formula or some other changes that the NAIC is making may help clean up some of that inconsistent treatment. But it might be something you might look at. If a particular piece of the formula calculation doesn't make sense, because of what is on that line for you, maybe it's looking for another piece of information. You ought to read the instructions in the background and try to figure out what's going on.

Some issues like the size factor and the concentration factor are going to be subject to a lot of judgment. You might have securities in which you can have an ultimate credit with several different issues of securities. How will you include that in the size factor? How will you include that in the concentration factor? The choice of the regulators was to have simple auditable rules that tend to break these up. But it would tend to ignore concentrations, and sometimes you go to the other extreme and lay out the spirit of what you want to do, which is count the concentration factors, the ultimate number of credits, and let people try their best. It would probably be good for companies the first year or so to write down how they're doing it. Otherwise, there will be a tendency from year to year to not use consistent results.

Will it work as designed? It's a tool, and like any tool it's only going to work if it's used. The regulators will have to audit what is submitted, they'll have to keep the formula fresh, and they will have to use it when companies' RBC numbers start changing in an adverse direction. Having the formula and having the law without

strong regulatory action really won't do much of anything. So it's sort of the first part of an important two-part mechanism to get back to the basic intent of the new capital structure that's going to help identify companies that are in need of attention before they get too far gone and too expensive to fix.

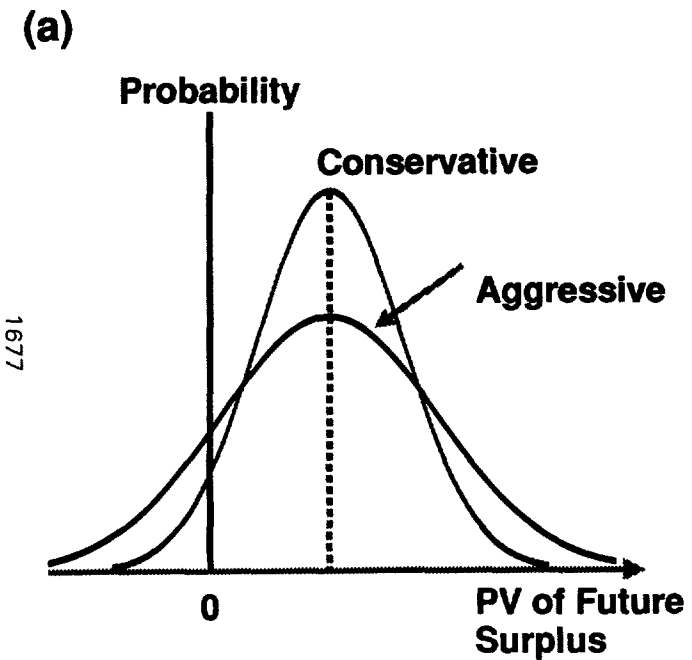
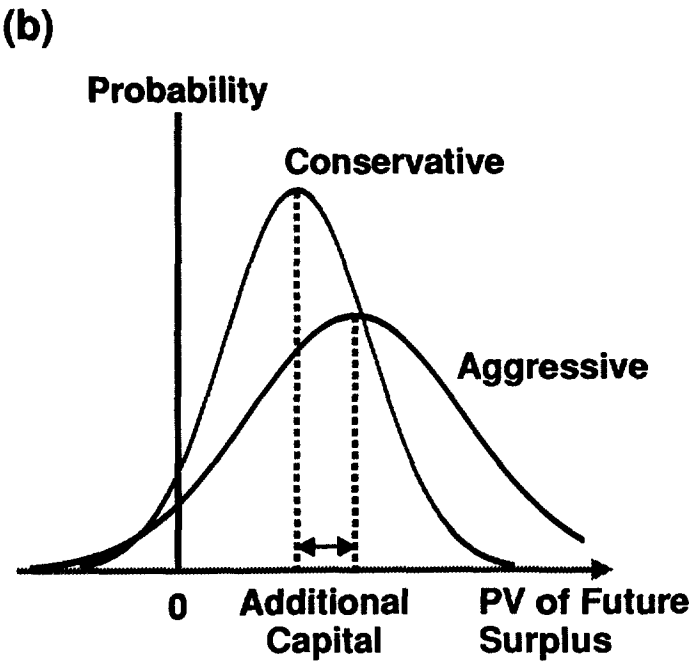
MR. ALFRED WEINBERGER: I will focus on the implications for RBC on investment strategy. The response of insurers and investment people to the proposals are quite varied. The good news is, just about everybody has heard of it by now, and that's not always true of esoteric regulations. So you should get a receptive ear, in any case on the investment side. But the responses have ranged anywhere from indifference to great concern, to just plain confusion. And in fact, in some ways, each of these responses is appropriate to the situation or to individual circumstances. One major concern of the formulators of the rules, and, of course, of insurers, is the question of whether RBC will become something of a beauty contest, in the form of ranking the RBC ratios. If you believe that to be the case, and this is clearly of some concern, in mastering your ratio and doing the right thing by it, the context of the constraint on ratio clearly becomes important. The jury is out. Many people are concerned that that indeed will resolve the beauty contest aspect.

I begin with the idea of how RBC works and present it in a slightly different fashion. What's the idea behind it? What I've plotted on the left (Chart 1) are rough probability distributions for the future value of surplus of an insurer.

I've basically compared two insurers. The companies are the same size in terms of assets and liabilities. But the second has adopted what we shall call, for the lack of a better term, a more aggressive strategy. The first, has a more conservative strategy, a strategy encompassing investments and other aspects of its business mix. The more aggressive insurer has a wider distribution for future surplus as compared with the conservative one.

Let's say that the area to the left of zero under its probability of distribution is 1%, as I think it is the intent of the framers. There is a 1% risk of failure somewhere down the line over the next several years. If that's the right number, then what has to happen for the aggressive insurer to come into compliance, or at least to have the same risk of failure? Well, obviously we need to add capital, and by adding capital today, we will shift its future distribution of capital as well by the same amounts in some reflecting present value. So this says that basically the idea of the RBC is based on the riskiness of the strategies you follow. If you have the same size business, you need more capital supporting that business if you pursue what's deemed to be riskier strategies.

I might add, there is another way to get the aggressive insurer to conform with the risk-based idea or to get its probability of failure down to the 1% level. That would be without adding capital for it to shrink. So you have the same capital base, but you would have smaller amounts of assets and liabilities. As you take the greater risk of the assets and liabilities that it has over a smaller base and distribute that on the surplus, you're going to wind up with the same probability distribution as the conservative insurer. If you want to pursue risk in your strategies, you're going to have to have a smaller balance sheet on the same base of capital. So either way,



you can add capital or you can shrink, and you can get the insurer at the right point from the RBC perspective.

In terms of the investment side then, what are deemed to be the aggressive strategies? Table 2 lists the proposed C-1 factors on the asset side. For the most part they are entirely fixed-income-type factors.

TABLE 2
Proposed RBC Factors for Selected Assets

Assets/Bonds	RBC Factor
U.S. Government	0.0%
Category 1: AAA-A*	0.3
Category 2: BBB	1.0
Category 3: BB	4.0
Category 4: B	9.0
Category 5: CCC	20.0
Category 6: In or Near Default	30.0
Residential Mortgages (Whole Loans) †	2.0
Commercial Mortgages	3.0

* Includes agencies and most collateralized mortgage obligations.

† Mortgage factors are for loans in good standing. These factors will be adjusted for a company's default experience relative to the industry.

I have not listed the equity components, but as an example, on the equity side, real estate would have a 10% factor, and common stocks would have a 30% factor. As we look at these factors, clearly the more aggressive, the higher the factors are in the framers minds. As you need more, as you have higher factors, you're going to need more capital. Because the capital is related to the multiplier, multiply the factor times the statement value and that's the amount of capital you have to set aside. So with that kind of wide range of capital factors for the different asset classes, what does that mean for investment strategy? Well, in the first instance, I think at first blush, some panic has set in. In the camp of those who have expressed concern, these are just representative expressions of horror that they see resulting from the introduction of RBC and from the wide range of capital factors that we just saw on Chart 1. Mortgage money will dry up, you can only buy NAIC acceptable assets. I've actually heard this from many people. Well, the question is, is that true? Should we panic? Will there be a monolithic flight to quality, as this is the only way to invest for insurance companies? The answer is a clear no.

I'm sure you're all familiar with the formula by now.

$$RBC = \sqrt{(C1 + C3)^2 + C2^2} + C4$$

I've added the policy variables: RBC ratio and RBC budget. The RBC ratio is your basic beauty contest item, and that's the ratio of your actual capital to your RBC requirement. If you're going to report half of your RBC requirement, then you can just double that number, and you go back to your ratio. By kind of turning the RBC budget around a little bit, I've assumed that companies will be operating with some kind of a target ratio in mind, if they're paying attention to RBC. The ratio might be

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one and a half, or it might be two. A convenient item for analysis and evaluating strategy for such a company might be the RBC budget, which says that if I have the actual capital and I have my target ratio, this is how much RBC I can take on. I may have slack in that budget which then says I can go out and do something with the free surplus quote. Or I may not have slack, and I may be right at my target ratio. But in some instances, it's convenient to talk about an RBC budget.

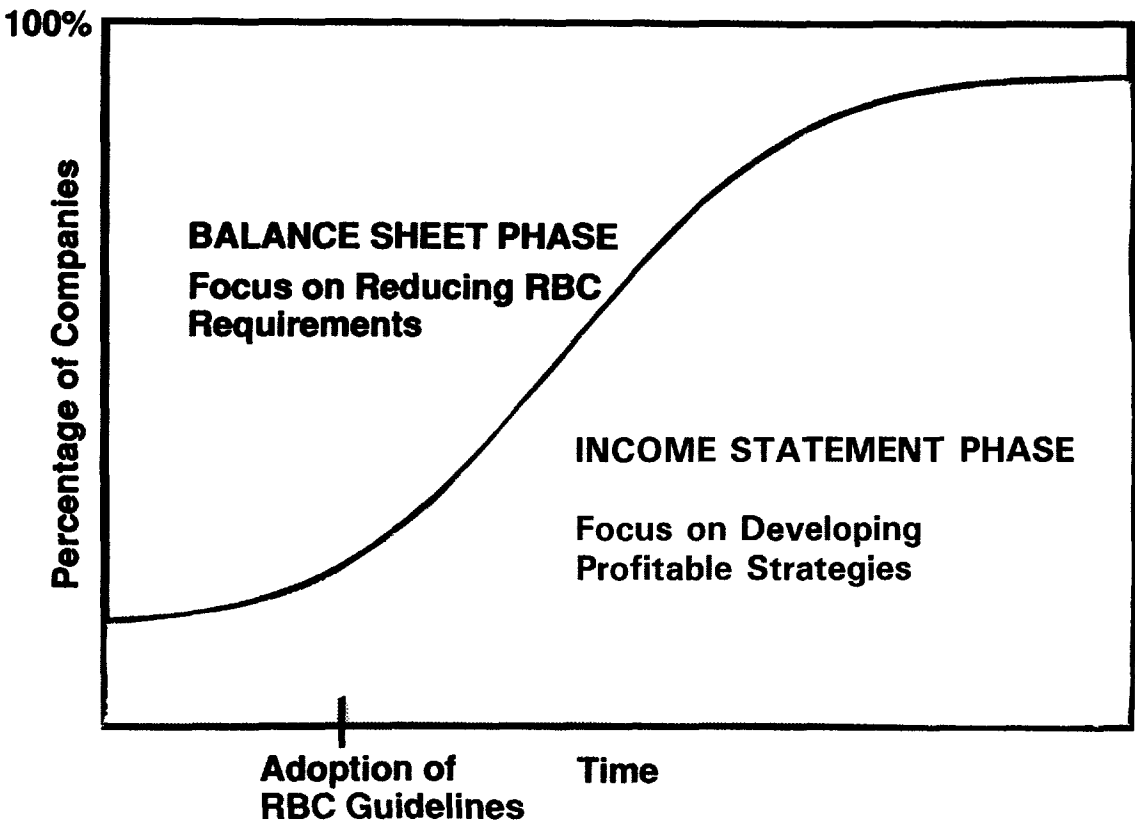
So how should insurers respond? What are the implications for investment strategy? It's absolutely critical to decide the question of investment, as well as possibly other strategic issues. It's to divide the situation or companies really into two camps. I've called them on Chart 2 the balance sheet phase and the income statement phase. We might define a third phase as a transition phase as companies go from one to the other.

What's the balance sheet phase? The balance sheet phase pertains to companies that find themselves, as the rules get applied, with an RBC ratio below what they want to have for their company. So, for example, if a company's target is 175, and it finds itself at a 1.4 ratio, it has a goal. It wants to get its ratio up from 1.4 to 175. That company is in the balance sheet phase. Its objective function in the balance sheet phase is not to maximize return on capital. Those strategies will not get it where it wants to go, at least not initially. It has a focus on improving its ratio. You do not improve your ratio by maximizing. As we'll see later, it's the sting from the objective function that you have in the income statement phase.

I'll give you a simple example. If you want to improve your ratio, you move out of riskier assets or out of higher-factor assets into lower-factor assets. You do nothing else. That will improve your ratio. Clearly that will not improve your return on equity. You've gone from a high-yielding asset to a low-yielding asset and have done nothing else. When you're doing this, and this is where a judgment has to come in, you have to decide how far away you are from your target and how quickly you want to get to your target. How much income might you sacrifice to achieve a higher target ratio? It's a complicated balancing act. We are weighing the consequences of a below-par ratio versus the actual income give-up of moving to higher-quality assets, which would allow you to improve the ratio.

So those are the problems in the balance sheet phase. There's an optimization problem as to exactly how to proceed. What do we do in terms of restructuring? What do we do in terms of growth? Some of the strategies in the balance sheet phase include those items. Asset restructuring is a one-way street in the balance sheet phase. It's up in quality and down in the RBC factor. Moderating growth is how quickly you can grow and still keep on track to a target ratio over a target interval. It perhaps pertains more to a transition phase. The balance sheet phase are things to do right now. You could restructure your assets, you could sell a line business, things like that. Moderating growth has more of a time dimension to it, so we'll call it transition-type strategy.

CHART 2
Insurers' Response to Risk-Based Capital: The Two Phases



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Again, the focus there is not to maximize return on anything, but basically just get your balance sheet in shape. Plenty of companies find themselves already where they want to be. Once you've achieved your target ratio, as I said earlier, if the target is 175 and you started at 1.4, you've managed by doing a variety of things over time to get the ratio up to 175. At that point, if you're happy with where you are in your ratio, you would move into what I call the income statement phase. In this phase, from a financial objective anyway, the target would be to maximize return on capital. What broadly defined strategies and terms of investments do I use to maximize return on capital? I understand that this may not be a singular objective for different institutions and so on. But at least, from the perspective of maximizing return on capital, what do I do? As we try to answer that question, it clearly has implications for investment relationships relative to values on what assets make sense and what assets do not make sense for different insurers. But also tied in is not just the question of investments, but also the question of overall business strategies, including what products to emphasize and what amount of leverage to actually have on your balance sheet. They're all connected; you can't really do one without the other.

So how do we make investment decisions in this income statement phase? Be quite clear about what it is you're trying to do and what analysis you're attempting. So first, the relevant question is, what's the question? What is it that you're trying to maximize exactly? Two possibilities lend themselves to slightly different formulations. But you could ask the following two questions. You want to move forward and maintain your target ratio, and you're going to be writing new business. The question is, how do you invest against that new business? What assets do you choose? What assets do you avoid? On the growth of business the second question is, "I'm not going to grow the business, but I have a dollar of free surplus, do I have the opportunity to take on riskier assets?" So it's a different paradigm.

On the one side, you're growing the balance sheet and writing new business. It's an important distinction, whether you're writing new business and whether you're asking if you have a little slack in your RBC budget, does it pay to up the riskiness of your assets? Two different questions have very different answers. What's the answer? Well, it is in the details, and I guess that's the point I'm trying to make. You really have to pay attention to the details, otherwise it is relatively easy to get into the wrong analysis.

The more important analysis is the question of setting investment policy for new business. Well, when you write new business, the analysis has to include asset RBC, liability RBC, and acquisition costs. Imagine being within your RBC budget, plus having a dollar of free surplus now. How do you write business and invest that dollar of free surplus in the most optimal fashion in the sense of maximizing return on capital? Well, when you write new business, you will be booking new assets and liabilities and incurring acquisition costs. It's important to realize the investment you're making is not just what appears on your statutory balance sheet tomorrow. The acquisition costs are gone, they do have to be captured and the returns on those acquisitions costs are not inconsequential. If you only focus on the analysis on the investment base as being what's on the statutory balance sheet, as I have seen done, you're missing something.

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I've written an approximate formulation. I would rather characterize that as an instructional formulation. I left a rather important detail out of that. But it won't matter for what I want to accomplish. Call it an instructional formulation just to get the idea that the investment base is not just the RBC on the balance sheet, but it also includes the investment and acquisition costs. You have to earn a return on all of that investment. The spread to your cost of funds is the numerator. That's the amount of money multiplied by the assets that gives you the profits:

Maximize:
$$\frac{\text{Spread to Cost of Funds}}{\text{Target Ratio} \times (\text{Asset RBC} + \text{Liability RBC}) + \text{Acquisition Costs}}$$

The true analysis is not easily written like this. It would be a discount cash-flow analysis, which would string out the investment times zero and all the cash flows over time. You would then determine the return on investment in a discounted cash-flow sense and see whether it meets the minimum return on investment, or in fact, maximizes return on investments. This is an approximate structural formulation. How important is it to get the asset RBC in there, the liability RBC in there, and the acquisition costs in there? By the way, the missing turn that would improve this is just plus the return on the asset being considered times the ratio. But anyway, we'll leave that for another time.

Well, how important is it to get all the factors in there? Table 3 compares three analyses: two of them successively leave out two, and I just described one of the factors. The analysis on the far right shows break-even spreads. By focusing on the far right, you do an analysis that considers the asset factor only. Using this formulation; drop the liability RBC and drop the acquisition costs; and you're left with the maximized spread over asset factor.

TABLE 3
Comparison of Break-Even Spreads and Market Spreads

Asset Type	Approximate Market Spread to Category 1: AAA-A	Type of Break-Even Calculation		
		Asset Factor, Reserve Factor & Acquisition Costs	Asset Factor & Reserve Factor	Asset Factor
Category 2: BBB	60bp	10bp	54bp	233bp
Category 3: BB	200	55	285	1,233

Note: Category 1 yield is 8.5%, and Category 1 spread to cost funds is 100 basis points.

For argument sake, the NAIC-1 bond is offering a 100-basis-point spread to your cost of funds. How much spread would you require for a two or three bond? There is a great diversity or range that results from the kind of analysis to be done. By doing an asset-only analysis, the answers will preclude ever investing in anything but government bonds. You would probably lose money by investing in government bonds. I don't know if you would make money by investing in NAIC-1 bonds. To invest in triple Bs, you would have to have an incremental 233 basis points over the NAIC-1.

The actual market offers (see the far left column) about 60 basis points. The answer is, you can't do it. Commercial mortgages would require triple Bs, or a factor of 1. Commercial mortgages are a factor of 3, so it would go up from there. For category

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3 bonds, double Bs, if by just looking at the reserve factors, you see you need an incremental 12%. No way. Those are actually numbers before you deduct for anticipated default losses. So it is very important. Take a look at all the right elements in the analysis. As you can see, the middle column, or the one first in from the left still leaves the acquisition costs out of the picture. It does include the liability RBC. You never have an asset without liabilities. So as you build up that balance sheet, you have to count the capital required on the asset side as well as the capital required on the liability side. You leave out the acquisition costs. You're doing a little better; you have 54 and 285. They are break-even spread levels for using the higher-risk, higher-factor, lower-quality-type assets. Once you include all the elements, however, these numbers are predicated on full discounted cash-flow analysis. These *break-even spreads drop sharply quite remarkably compared to where we began.*

Now compare them to the available spread in the marketplaces. You can certainly use triple Bs, and you can certainly use double Bs. Not only can you use them, but you do better from a return-on-capital point of view. But the catch is for a given amount of free surplus, you can't write as much business. So you will earn a better return on capital, but you'll have a smaller book of business. And depending on objectives and priorities, those are the trade-offs. You can't have the same book of business for the same capital and have a riskier asset. Consider extending the framework all the way out on the RBC factor for assets. This straight-line relationship continues the analysis but ranging out to higher and higher factors. You can see where the different asset classes arrange themselves. This is a very one-dimensional look at investment policy. It is just from the RBC perspective. I'm not suggesting that we forget about duration or option-adjusted spreads. We have to make a distinction between the true economic risks of these items and what happens to be on paper as a rule. Based on my analysis, for common stocks, for example, with a 30% factor, to break even with NAIC-1 bonds with a 0.3% factor, you would have thought perhaps it was in the stratosphere, and the answer is no. An additional 450 basis points will do it. And that's well within our common experience of long-range returns on common stock.

The other analysis is evaluating asset restructuring. I label the prior analysis, where we're actually writing new business, and incurring acquisition costs, etc. as a total analysis. I label this as more of a marginal analysis. You already have your balance sheet in place, and the only thing you're thinking about now is not writing business, because once you do that, you have to worry about acquisition costs. I call this a silver bullet analysis that the asset people have prayed for. But it really doesn't contain that much information. What I mean by silver bullet is that with this analysis, all you really need to know is the assets' return on the RBC factor. You can do an analysis to find whether it makes sense to redo the assets with this free dollar surplus. That's all you're doing, without adding new business. You find the maximum of the incremental spread offered by the asset, divided by the incremental RBC factor, and calculate the marginal return on surplus (ROS) for the asset that maximizes that ratio. And then compare that. If it matches or exceeds your required ROS, then you can argue that that's something to do.

I've broken another step into capital unconstrained and capital constrained. In unconstrained, you take on any project that matches your required ROS. In a constrained environment, you really want to rank them and maximize your ROS. In a constrained

environment, you compare not only to your acquired ROS, but also, to the new business ROS because the other alternative with the free dollar of surplus is not to redo your balance sheet, but rather to write new business.

Take a look at a case study (see Table 4). The answer must match the question. Here a single premium deferred annuity (SPDA) has an agent commission of 4%, and a target ratio of 125. I've arrayed the opportunities from the NAIC 1, 2, 3 in terms of yield and their RBC factors. When you do the total analysis, to decide on what investments to use, if you blindly go from one analysis to another without understanding the content, you might get the wrong information. If we go to the marginal analysis that I just described to say it's applicable to the situation where you're not writing any new business, you would perhaps conclude that you ought to invest in NAIC-2 bonds. The numbers in Table 4 are fairly representative. As to the marginality of this analysis, look at those ROSs. Those are rather hefty.

TABLE 4
Case Study: The Answer Must Match the Question

Case Description		Investment Data	
		Yield	RBC Factor
Product: SPDA	NAIC 1	8.5%	0.3%
Agent's Commission: 4%	NAIC 2	8.9	1.0
Target RBC Ratio: 1.25	NAIC 3	10.0	4.0
	Total Analysis	Marginal Analysis	
ROS 1	20.4%	N/A	
ROS 2	25.3	54.0%	
ROS 3	30.7	40.8	

It's only on the margin where we're missing something in the overall problem that insurers have. This is commonly called risk-adjusted analysis. I think that might fail and mislead. Fifty-four versus a 40% investment in asset says to get out of any NAIC-1s and go into NAIC-2s. It makes sense that these spreads do that. On the other hand, if you go back and do the total analysis, which would be applicable again to the whole picture – writing new business, putting on new assets, etc. – you would find a different array. In fact, NAIC-3 would offer you a superior total rate of return as compared with NAIC-2.

In conclusion, what have we wrought with RBC? The insurance industry has been in business for a long time. It has used a variety of asset classes for the longest time. It has been the principal supplier of capital in different markets for the longest time. And most insurers have been managed responsibly and still are doing fine and are not insolvent. So why should RBC come along and upset that? I don't think it was anybody's intent. If the analysis is done correctly we don't have to panic. The returns available from lower quality justify their use.

FROM THE FLOOR: The chart about the IMR didn't seem to make any sense to me. You start up a new company and you decide for some reason not to write any business for the first year or so. You go through a whole period and you have no

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business on your books. But let's assume that you are still going to be treated as an insurance company. Interest rates drop a little bit, you decide to sell some of your bond, and you get a capital gain. What should be set up as IMR? Regarding the asset evaluation reserve that gets added back in, if I were to sell the company at that time to a buyer, the total RBC wouldn't change. What do I do with this IMR? It doesn't seem to have anything to do with liabilities.

MR. WARD: We discussed the problem that you raised with respect to an IMR for a shell company, or an IMR for capital and surplus assets. My own personal preference was for an exclusion of either the capital or the surplus, or shell situation. But it was felt that it was something we could not do from a practical standpoint on the one. We also were concerned about the potential for playing games, for those companies not in a shell situation but having capital and surplus. So, we made it a requirement for all kinds of insurers. The topic may very well be discussed in the future. What happens if you sell the company, and you have an IMR on your balance sheet? We have dealt with that. I had reference to that in the exempt situation. You have a unique situation of a so-called life insurer shell with no business. It possibly is something we may have to think more about in the future.

MR. TAN: Paul, if I'm the actuary of the company, and I know that my reserve bases, my reserve assumptions, and my methodology are very conservative relative to the industry, is there some leeway for having a smaller RBC?

MR. KOLKMAN: We wanted to respect the statutory statement as filed. Companies that have very conservative valuation bases typically don't have situations where they're dramatically short on surplus. And with the valuation actuary opinion now, the belief is that the opinion refers to all reserves. If the actuary could set reserves arbitrarily each year-end, the number might come out above minimums and below what's on the book. And there's really no way to draw that line. We felt that the best thing to do is respect what's in the book, knowing that there would probably be some cases where that number is a little redundant, but also relying on the actuary to increase that number in those cases where minimums or formula reserves really aren't adequate.

