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# Session 83PD
# Risk-Based Capital (RBC) Ratios

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**Panelist:** NORMAN E. HILL
**Recorder:** NORMAN E. HILL

*Summary: This session presents various perspectives on risk-based capital (RBC) ratios, including pricing, solvency, and the view of company management. The potential impact on investment and other business decisions will be examined.*

**Mr. Norman E. Hill:** I am a member of the AAA task force that deals with RBC for life insurance companies. Because there may be a variety of people here in terms of RBC knowledge, let us briefly define RBC as the minimum capital and surplus that a life insurance company has to maintain. It is defined, statutorily, in laws and regulations, and this RBC amount is published and compared with a company's total adjusted capital. The latter is basically the capital and surplus shown in an insurer's annual statement. RBC thus measures what the company must maintain versus what it actually has now. RBC is defined in terms of the risks that a company assumes:

- from its assets (C-1),
- from the type of business that it writes (C-2),
- from the risk of disintermediation (C-3), and
- from general business risk (C-4).

RBC requirements, that is, the legal obligation to perform RBC calculations, have been effective for life insurers for several years. They are a little newer for property/casualty insurance companies and health insurance companies. At the moment, I believe there is general industry comfort with the entire process. There is always a great deal of concern when something new is developed, especially when it is legally required. Companies now have procedures in place for these additional calculations, and they are, therefore, able to cope with them. The ongoing emphasis with RBC is refinements and improvements, not basic, fundamental changes. Refinements and interpretation are still being discussed, because the effect of any change to any portion of the RBC formula must be thoroughly tested and understood. The NAIC working group is responsible for life RBC matters. The AAA task force on Life Risk-Based Capital, often carries out research assignments that the NAIC working group requests.

It must be emphasized that the original thrust of the RBC formula was simplicity. The formula does involve the square root of certain components and squaring of certain calculations, but it is still a fairly simple formula. Whenever refinements are proposed, one key question that is always asked, without exception, is how much additional complexity will result? Do the benefits from preciseness of the change justify the additional complexity?

One important recent change involves a refinement to the RBC formula for commercial mortgages. Many insurers hold a considerable amount of commercial mortgages, although not uniformly throughout the industry. The basic RBC formula charge for these mortgages is a percentage of their carrying value, the so-called C-1 risk or the risk of asset default. The original formula was 3% of carrying value subject to an experience adjustment factor. After detailed studies by the AAA's task force and several other industry groups, NAIC regulators agreed to reduce this charge to 2.25%. This was the easy part, even though it involved several years of discussion. Another aspect of mortgages is restructures, that is, when provisions such as interest and term are modified. This type of change was more controversial because a restructured mortgage is invariably not performing well when renegotiation takes place. The revised terms of the restructured mortgage are usually less attractive to the insurance company that issued the mortgage. Many variables of restructure must be considered, such as:

- duration since restructure occurred,
- terms of restructure,
- the cash flow of the restructure compared to the previous cash flow,
- the current loan-to-value ratio of the restructure, and
- can the restructure ever be reclassified (considered part of mortgages in good standing).

All the above variables must be considered when revising the RBC formula for restructures. How can a restructured formula for RBC maintain a reasonably easy degree of auditability by regulators and other parties? After much discussion, the new approach to commercial mortgage restructures is 7.5%, subject to a minimum.

There has been discussion about possible negative RBC. It is quite unlikely that RBC would ever turn out negative in total, but it is theoretically possible. A negative RBC total could result from either of the four elements: C-1 for asset risk, C-2 for claims, C-3 for disintermediation, or the C-4 business risk. Because RBC involves squaring the first three items and then taking the square root, overall, the final result cannot be negative. But any negative component within either of these four items would reduce the total and would probably produce an unintended result.

Areas where negative RBC may be possible include reinsurance, modified co-insurance, and separate accounts. The most likely area where negative RBC could result from reinsurance would be in computing the C-2 risk. The health insurance formula usually involves a C-2 risk that is a function of premiums. When direct premiums are ceded, the interaction of the formula between the ceded portion and the retained portion could result in negative premiums in the annual statement. This result could be perfectly legitimate, but a negative overall premium could result in a strange looking RBC result.

Suppose that paid-up life insurance is ceded. Reinsurance may involve allowances paid back to the ceding company, such that, for accounting purposes, allowances are included in a premium line. In such a case, a negative premium could result to the assuming company.

Next, consider modified coinsurance for life policies. The ceding company retains reserves, but turns over the risk. The C-2 charge for life insurance is defined in terms of the net amount at risk, face amount minus reserves. But the face amount is held by the assuming company, while reserves are with the ceding company. The ceding company will calculate a zero face amount minus a positive reserve, resulting in a negative net amount at risk (i.e., a negative C-2). Again, this is theoretically possible.

Another possibility exists for separate accounts. If a company uses a reserve formula known as Commissioner's Annuity Reserve Valuation Method, its liability for total separate accounts may be less than assets allocated to separate accounts (i.e., a surplus for separate accounts). In some cases, instead of showing surplus directly in separate accounts, this amount is presented as a negative liability in other portions of the annual statement. This could result in a negative C-3 component.

The AAA task force also deals with health matters as they affect life insurance companies. Recently, there was a regulatory proposal to prepare a general approach for health coverage that cuts across all companies: life insurance, property/casualty, and particularly, health maintenance organizations (HMOs) and Blue Cross organizations. A separate regulatory group and a separate AAA advisory group studied health RBC. There was considerable concern over some of the initial proposals. Health insurance, of course, cuts across various health sublines. Original statistical tests emphasized group major medical or the equivalent sold by HMOs and Blue Cross. A formula that would work for this subline must still be appropriate for disability, medicare supplement, long-term care, various types of cancer, and hospital indemnity insurance.

After review by various groups, including the AAA Task Force on Life Risk-Based Capital and considerable discussion at NAIC meetings, the proposed overall formula is basically consistent with the life RBC formula. Evolution of the health RBC again addressed the issue and the objective of simplicity. Changes and refinements were made to the proposed formula to make it more user-friendly and more auditable. Of course, with some organizations, such as HMOs and, probably, managed care organizations, other issues must be considered. What should RBC charges be for healthcare assets such as medical equipment and capitation fees?

The C-3 component of RBC deals with the disintermediation risk, the risk that policyholders will select against the insurance company at the worst time and surrender their policies (i.e., when market values of assets are depressed). The original formula is fairly simple, such that C-3 charges are multiples of interest-sensitive liabilities. Such interest-sensitive products are constantly changing. One recent proposal is that, instead of charges against liabilities, the overall charge for the C-3 risk be tied to cash-flow results. Insurance companies perform cash-flow testing under the Standard Valuation Law. Cash-flow projection results may be favorable or unfavorable. Should those results be tied to the amount of the C-3 charge? One complication is that smaller companies do not, at the present time, perform cash-flow testing each and every year. In fact, the smallest companies do not perform cash-flow testing at all, provided that they meet certain criteria. There is also the possibility of employing stochastic processing to perform an endless number of cash-flow scenarios. This approach requires large computer capacity and very complicated programming.

I am affiliated with a small company, and these organizations are very sensitive to questions of increased costs of compliance with regulatory requirements for RBC. Therefore, revised C-3 formulas are still in an evolutionary stage. Personally, I believe that any such changes will be tied into those situations where a company's business shows a concentration of interest-sensitive products.

Rating agencies, including the A.M. Best organization, Standard & Poor's, Moody's, and Weiss, are important to insurance companies. They have looked closely at developments in RBC, and I believe that many of these organizations now use either RBC formula or a similar version. A.M. Best has always applied formulas (which it won't disclose) that amount to a required versus actual capital test. My understanding is that Standard & Poor's has stressed the C-3 component in its rating process. It may apply separate software that deals extensively with what it views as the C-3 risk.

Another area where RBC has come into play is actuarial appraisal reports. These reports deal with values of blocks of insurance business or the value of insurance companies as a whole. I have been a consultant and have both prepared and reviewed them. My impression is that, in the 1980s, when interest rates were high, many actuarial appraisal reports reflected these high interest rates. Unfortunately, in light of subsequent events, some actuarial appraisal reports overstated values and lost a bit of credibility. They were viewed as seller's documents. A new development, tying in with RBC, is including the cost of capital in appraisal reports. I believe that this is a positive development. The argument is that RBC requirements tie up a company's capital. Interest earned on assets backing the capital may not be restricted, but the capital itself (i.e., the asset value) is restricted and cannot be paid out. From a projection of future profitability of business, its present value is reduced by the present value of interest that is "lost," or restricted on tied-up capital. There may be alternative approaches, but they amount to a general reduction of the present value of business because of RBC requirements. Lower present values often lead to lower purchase prices, if other items are equal.

Appropriate RBC requirements for synthetic GICs have also been discussed. These are very specialized products that are only sold by a few companies, usually the larger ones. Underlying assets do not appear in the insurer's books. Similar interpretations must be made whenever new products evolve. A regulatory RBC working group is charged with keeping up with these new developments, and defining how the current formula should be applied for these products.

Liquidity requirements are still being tested. Formerly, I thought that liquidity was self-evident (i.e., a company is liquid if it has enough assets to pay all obligations), but, unfortunately, it is not that easy. In a certain respect, current RBC requirements touch on the question of liquidity. If a company has only government bonds in its portfolio, its RBC requirement will be lower because these assets are so liquid. If the insurer holds much real estate in its portfolio, its RBC requirements will be higher because it is more difficult to dispose of real estate.

There are other complications with the current formula, though. RBC charges on invested assets are usually percentages of statutory carrying values, or book values. Current RBC, just like statutory accounting, does not usually deal with the question of market value. Both my Academy task force and possibly other groups are looking at the question of liquidity and whether there should be separate legislation for liquidity or whether it can be tied into current RBC requirements. The matter is still unresolved.

Another issue involves a new concept, "capital notes." Many actuaries are familiar with surplus notes as a means for insurance companies to raise capital. Amounts owed are included with capital and surplus, rather than liabilities. Usually, these notes have to be paid back, as with any other obligation. But usually the payback of either principal or interest on surplus notes can be made only after advance approval (each and every year) from the insurance department.

Capital notes are a new type of entity, still in a proposal stage, and the farthest advanced are in New York. A capital note would possess some characteristics of surplus notes, in that it would represent an obligation that would have to be paid back. However, repayment would not require advance regulatory approval each year. Capital notes would be shown as a liability in the annual statement, but they would be a part of total adjusted capital for RBC purposes. In other words, total adjusted capital, when measured against RBC, would be increased by these capital notes. All these points are still in the discussion stage.

Several years ago, there was speculation that many companies would use reinsurance devices to try and improve their RBC. This could be done legitimately, as long as treaties were legitimate risk-carrying devices. I've heard of a few situations where this device was used, such that assets/liabilities transferred would reduce RBC charges otherwise generated by them for the ceding company. However, the transactions have occurred less frequently than predicted.

Next, I would like to provide a laundry list of the uses of RBC. My phrase is "uses," although people may question it. I do not believe that these "uses" were intended in the original laws and regulations, but they seem to have evolved regardless.

Using RBC, directly or indirectly, to rank companies has always been frowned upon. But, while there have been attempts to control it, some agent groups and rating agencies effectively employ it.

Then there is the question of small reinsurance companies, particularly those with surplus under $20 million. When they assume business, the ceding company needs assurance that the reinsurer is adequately capitalized. It also wants to make sure that its credit for reinsurance is protected against regulatory challenge. Unfortunately, with some states, the first does not guarantee the second. One proposal is to provide in a regulation that ceding company credits for cessions to small reinsurer are valid if the reinsurer has adequate RBC.

I discussed capital notes above and stated that normally there would be no restrictions on yearly payments of principal or interest. However, there still would be overall financial requirements that the company would have to maintain for automatic repayment to take place. These requirements would include maintenance of defined levels of RBC.

To conclude I will give you an overview of what I see in RBC. There is the attempt to impose consistent requirements for RBC for all types of bearing entities. These requirements now exist for life, property/casualty insurers, and health insurance organizations. They are not exactly the same, but the intent has been to make them as consistent as possible. At the NAIC, there is one overall working group responsible for RBC. It includes sub-groups for life, property/casualty, and health, but the intent is to look at an overall picture. I would say that RBC is now part of our insurance environment, and it is an evolving, interesting environment.

**Mr. Mark S. France:** When you price a product, do you make some sort of explicit consideration for RBC, and if you do, what do you do with it? How do you build it in?

**Mr. Hill:** I do not believe that all companies include it explicitly, but I think some inclusion of RBC is becoming more prevalent. One way would be to include a type of interest charge each year for the amount of required RBC for that product. Here you could define RBC from the C-2 point of view. In life insurance, the net amount at risk, or with health insurance, annual premiums would represent required RBC charges.

**Mr. Larry M. Gorski:** Your comments seem to echo two conflicting threads. One was the multiplicity of uses of RBC, and maybe the ever-increasing uses of RBC. But initially you mentioned that one of the constraining forces was simplicity, and it seems like those two are really in conflict. From your perspective, which one do you think should win out? Should simplicity be retained, and maybe some more effective ways of dealing with the different uses be employed, or should the RBC working group move ahead and try to refine the formula as best as possible?

**Mr. Hill:** I emphasize that I was not necessarily approving of some RBC uses, but I was trying to present what I see happening. I believe that there is a conflict between simplicity and trying to refine it. To make RBC more precise, I personally think that, in the conflict between the two, the simplicity objective will have to give way somewhat. However, I hope that we can still retain this goal of simplicity and always consider it in our deliberations.

**Mr. Gorski:** As an alternative, and maybe with the desire to retain simplicity as the primary objective, what about changing the method of reporting RBC in the annual statement? Right now, there are two numbers reported in the annual statement, total adjusted capital and authorized control level. With these two numbers, one can do some manipulations and come out with all the different levels of RBC to do the ranking and other things you alluded to. One of the ideas offered in the past is to replace the current method of reporting with a method based simply on reporting the ratio of these numbers. In addition, the ratio could be capped at some point, say, 250%. Using that scenario, two well-capitalized companies from an RBC standpoint look the same. There would be no need to differentiate between one company that, in reality, is 350%, versus another with 450%. They would both look the same. With that in mind, a great deal of the uses would fall by the way-side. I wonder what your response would be to that way of retaining simplicity?

**Mr. Hill:** Larry, as many of you know, is chairman of NAIC's Risk-Based Capital Working Group under the overall RBC working group. Limiting this disclosure might inhibit the more blatant attempts at ranking companies. However, with annual statements disclosing so much information, anyone who is determined and knowledgeable could still reasonably estimate most companies' RBC if he or she really wanted to.

**Ms. Victoria S. Lusk*:** I was wondering if you could provide more information on the proposed health RBC. Specifically, when it is going to be required for health insurers, and more to the point, what kind of health insurers it is going to be required for. You mentioned nonprofits and HMOs, but what about limited service health providers, and some of the quasi-regulated or quasi-licensed provider groups that are taking on risk?

**Mr. Hill:** I don't know if I have an answer to that. I think that the regulatory scope is still being discussed. In general, the intent is to attempt to make the formula as broadly applicable as possible to any risk-bearing entity, and to try to draft regulations so that all aspects of its operations (i.e., revenues, expenses, assets, etc.) are covered.

**Mr. Frederic W. Corwin, Jr.:** I would like to raise the question of synthetic GICs, which are contracts where the assets are owned by the customer, not the insurance company. Typically, the customer is assuming the risk of default. I would like to

*Ms. Lusk, not a member of the sponsoring organizations, is Associate Actuary for the State of Colorado's Division of Insurance, in Denver, CO.

have some background and rationale for what the thinking is as to why and for what purposes we need RBC on these contracts.

**Mr. Hill:** Let me say that one of the considerations about synthetic GICs is that the insurance company is not in total control of the assets. Larry, will you answer Mr. Corwin's question?

**Mr. Gorski:** I think one of the motivating forces behind trying to incorporate an RBC charge for synthetic GICs is that the synthetic GIC product is in an evolving stage. Currently, while the products may be fairly nonrisk events for insurance companies, there is no guarantee that these characteristics won't change in the future. Even with the current products, there may be some C-3 risk element with a synthetic GIC product. Therefore, the real motivation is to build a framework for recognizing new products into the RBC structure.

Synthetic products will more than likely evolve over time. It doesn't make much sense to try to bring RBC into play five or ten years down the road, where many more companies may be issuing synthetic GIC products, and these products may be more risky from the insurance company's perspective. This was simply a way of dealing with an issue early on. My initial reviews of synthetic GIC products indicated that they are really all over the place, in terms of design. Also, the contract filings that I see are very client-specific with contract language that varies from client to client. With that in mind, the nature of the synthetic GIC product can evolve very quickly, because insurers are competing with banks in this marketplace. If someone comes out with a product that takes on some C-1 risk, for example, we want to have something in place that quickly adapts to that situation.

**Mr. Hill:** More and more, we will probably be looking at products that aim to keep up with evolving bank regulations and status. Therefore, RBC regulations will be tied to the whole question of banks relative to insurance.

**Mr. Gregg E. Littlefield:** You mentioned some of the unapproved, unauthorized uses of RBC. One of the uses that you alluded to or mentioned is that rating agencies do take RBC into account. I'm curious to know if you have a sense for the kind of weight that they're putting into it. Maybe that is not what the intent was, but it does appear that many companies are probably being graded with this method.

**Mr. Hill:** Rating agencies do not disclose exactly what they do. With our company, we describe our RBC results to the rating agencies. We have no inhibitions about that and I also think that this has a positive result. If there is a common method that rating agencies can use to look at insurance companies, a way that's been discussed openly in the industry, their approach may become more consistent from company to company. Right now, I believe that at least one of the agencies may be trying to emphasize C-3 more than others. In any event, I don't see any problem with companies being up front with rating agencies as to the details of their RBC calculations.

**Ms. Kathleen R. Wong:** Maybe I can respond to the last question. First, I cannot speak for the other rating agencies, but we are interested in knowing the company's RBC and we look at RBC as a basis for evaluating capital. We have our own RBC formulas. Although we get information from companies, we do not use all of it as the basis for evaluating companies. We have studied the NAIC RBC formula to decide where we think it has flaws. The NAIC emphasizes simplicity, as you spoke about earlier, but we do not have to be quite as simplistic. To comment further on what was said about our stress on C-3, we think that is one area where the NAIC RBC formula is rather simplistic. We try to add greater value with our C-3 approach. Lately we have been focusing on the asset side. As to our having our own model, we use a number of models, and we also look at the models that the companies use. As a follow-up question, is there a clue as to when C-3 refinements might be included in the NAIC's RBC formula?

**Mr. Hill:** I will defer to Larry about that, but I would say that it is likely to come up in 1997.

**Mr. Gorski:** Yes, I would say that, personally, my highest priority is to refine that element of the RBC formula. I think that we all recognize that the initial RBC formula was C-1-directed. A great deal of work was done on C-1, some work on C-2, and some hand waving on C-3. That combination may have been appropriate at the time. Now that the RBC formula is in place and, for the most part, asset adequacy analysis and cash-flow testing are also in place, it seems to me that there should be an integration of the two elements. I view the improvement on the C-3 side of utmost importance. I think that it is necessary to integrate both asset/liability cash flows into that analysis, and any formula-based C-3 component would be, I think, somewhat shortsighted and inadequate. It would be too much of a bend to simplicity. We are definitely looking toward integrating asset adequacy analysis and RBC. In terms of adoption, 1997 would probably be the earliest, with implementation possibly in 1998. Again, you pointed out what I think is possibly the largest practical stumbling block, and that is the small company issue. How do we deal with companies that currently are not required to do any form of cash-flow testing or asset adequacy analysis for purposes of rendering an actuarial opinion? It seems to me that the small company issue is intertwined into many different issues these days, ranging from capital notes, to RBC, and to state variations in valuation laws. Somewhere along the line, small companies will have to change their viewpoint on what is necessary for an actuarial opinion. I think that once that happens, there will be a cascading effect through many different regulatory areas.

**Mr. Hill:** One of the topics that I was going to mention, but didn't, was that RBC should evolve into some relationship to the actuarial reserve opinion. This is an issue that is very sensitive for smaller companies.