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FINANCIAL RATING SYSTEMS

Moderator: ROBERT S. FILLINGHAM
Panelists: ROCHELLE LETOURNEAU BERGIN*
LARRY A. BROSSMAN†
PETER F. CHAPMAN
MARK P. MUELLER‡
Recorder: ROBERT S. FILLINGHAM

- What is the process?
 - NAIC methods
 - Rating agency methods
- How have they performed?
- How can they be improved?
- Risk-based capital

MR. ROBERT S. FILLINGHAM: We'll discuss financial rating systems -- both those used by regulators and those used by rating agencies -- as well as risk-based capital. Our panel includes a regulator, the head of the insurance rating division of a major securities rating agency, a consulting actuary working with yet another rating agency, and an investment banking firm representative. I'm a consulting actuary with my own firm, specializing in assisting insurers with their analysis and management of credit worthiness issues. We have a rich mixture of perspectives for you on this theme.

Our first speaker, who will address financial rating systems from a regulator's perspective, is Rochelle Bergin. Rochelle joined the Minnesota Department of Commerce in 1985, following a 17-year career in commercial banking. In 1987, she was appointed Assistant Commissioner, with responsibility for the insurance examinations area. In 1992, she was appointed Deputy Commissioner of Commerce and is responsible for the Insurance Division of the Department of Commerce in Minnesota. She's active on several committees of the NAIC, including risk-based capital, examination oversight and guaranty funds.

Peter Chapman and Larry Brossman will discuss two distinctly different rating agency approaches to classifying insurance company financial strength, those of Weiss Research and Duff & Phelps, respectively. Peter is a consulting actuary in Winston-Salem, North Carolina and Weiss is one of his clients. Larry Brossman is group vice president in charge of the insurance rating division of Duff & Phelps.

- * Ms. Bergin, not a member of the Society, is Deputy Commissioner of Commerce in St. Paul, Minnesota.
- † Mr. Brossman, not a member of the Society, is Group Vice President of Duff & Phelps in Chicago, Illinois.
- ‡ Mr. Mueller, not a member of the Society, is a Senior Associate at Morgan Stanley in New York City, New York.

To provide yet another perspective on risk-based capital, Mark Mueller will discuss several of its investment implications. Mark is a senior associate at Morgan Stanley, and he is primarily responsible for developing models that analyze the optimization of asset-liability portfolios and tax strategies.

MS. ROCHELLE LETOURNEAU BERGIN: I've been asked to talk about the NAIC rating system, and you all know, I'm sure, that it's called the Insurance Regulatory Information System (IRIS). The main job over the years has been to help state regulators make the most of limited resources by identifying companies for them to watch. Previously, it's been totally confidential. Now the ratios are public. The analysis, however, is still not public. It is not intended to replace an insurance department's analysis or examinations.

It is done in two phases. The first phase includes 12 ratios that indicate performance of the company in the last year. The results are compared to usual ratios of other companies. The departments then are all notified of what the ratios are and how many usual or unusual ratios the company has.

The second phase consists of a team of state examiners who review the ratio results and do more of a regular analysis. The goal there, too, is to identify companies that appear to need immediate attention. The examiner team uses those results to rate, first priority, meaning, of course, that the state should review that company first. A second priority would be a second level. A third priority would be a third level of review. No priority means it can just be put over in the normal stack for awhile. The copy of the examiner team report is sent to both the company and to the state. The states must reply to the examiner team on the first-priority companies.

The past performance of the NAIC rating system was probably not a bad record for what it was. But it's a simplified system, with obvious limitations, such as the accuracy of the annual statements and how well they've been filled out and prepared by the companies. The ratio interpretation was dependent totally on the judgment of the examiners, so the quality of that analysis could vary considerably. There was no test of reserve adequacy for life companies, and in the past, the analysis was always too slow. The annual statement data, when it was done manually, was not entered quickly enough. The examiner team phase, being dependent on examiners from overburdened states, couldn't begin the project quickly enough and probably didn't finish anywhere near in a timely fashion. But things have changed there.

I think that everyone in the world doing ratings woke up a little bit. Primarily, I guess, due to diskette filing, the annual statement information is available much sooner than it was in the past. I can remember in the past sometimes waiting until late May for some of the information. Now most of the annual statement information is available by the end of March. We're also seeing a far better review of the ratios that are used.

In the very close past, we've seen the addition by the NAIC of a Financial Analysis Working Group, a Financial Analysis Research and Development Group, and a Financial Analysis Division (staff people of the NAIC). The Financial Analysis Working Group was formed by the NAIC's Examination Oversight Task Force to identify

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companies of national significance that may be or are troubled, and then to determine whether the state of domicile is taking appropriate action.

Property/casualty companies are regarded nationally significant if the company's gross premiums are over \$30 million and the company is licensed in 17 or more states. Nationally significant life companies have gross premiums greater than \$50 million and are licensed in 17 or more states. If any of these criteria were met by a company in any of the last three years, then that company is flagged for attention by the Financial Analysis Working Group. A flagged company is run through ratios that test and assign points for priority, but they are different ratios and are more extensive than the old IRIS early-warning system. They measure profitability, liquidity, leverage, growth, cash flow, reinsurance, and asset quality. The Financial Analysis Division then analyzes companies from the immediate-attention scores. The Financial Analysis Working Group, which is a different entity than the staff analysis division, does a peer review of each company. So, again, people from other states are taking a look at these things, and they decide if solvency issues really exist.

Letters are sent out from that group to the state of domicile and, again, the state must respond. The Financial Analysis Working Group reviews the response, and it either closes the file or continues to monitor in one way or another. If it determines that the response by the state is inadequate, the Working Group may recommend corrective actions to the state, or the state may be requested or required to present in front of the Financial Analysis Working Group at one of the big NAIC meetings. The state actually goes in and says what the problems with the company are and what is being done to correct those problems. If the response is still inadequate, or if the state has taken no steps, then the Financial Analysis Working Group's findings go to the Examination Oversight Task Force.

In addition, there's the Financial Analysis Research and Development Working Group. That was formed in 1991, and it supervises the development of the computerized analytical techniques to improve the quality of the ratios, to be sure that they are working, and to be sure that they are flagging and identifying actual problems.

As far as the IRIS early-warning system is concerned, it probably didn't have a bad record for what it was, but the present performance is really better. The Financial Analysis Division, Financial Analysis Working Group, and the Research and Development Group have been a significant addition to the NAIC solvency and policing agenda put together in the last couple of years.

I think that peer review is an important component. It should ensure the highest level of review, not only by the addition of the paid staff, the Financial Analysis Division in Washington, but by the best of state regulators.

I haven't been called on the carpet yet, but as a regulator, I really don't want my peers to have to tell me that I'm not doing a decent job. So there really is something to the fact that I don't want to appear in front of that committee and have six regulators from other states looking at me and saying, "Rochelle, what do you think you're doing?" or "Why aren't you doing something?"

Again, this part of the process is relatively new. The ratio analysis is still developing and, as we all know, that can't remain static, so the Research and Development Group is also a great idea. And, again, I'm – so far at least – very impressed with its work.

Another new thing is that the NAIC budget for 1993 includes a staff person to assist the examination team to provide more consistent follow-up. All the examiners from across the country converge in Kansas City to do this job of trying to identify companies for other states. But their work piles up back home, so they have to get back there, and it's been tough to do the follow-up. So this staff person will be a significant addition to the process.

I hate to talk about private rating services and past performance. I could probably go on forever, as most everyone else in the world has. We've all read the articles. Criticisms abound, as have articles and horror stories, about buying ratings and who knows what else. I think that ratings have often been misunderstood by the general public. Also, attention isn't given to different types of ratings or even whether the current financial condition is being rated as being distinct from a rating of future ability to pay. The public doesn't realize that there are different rating scales. I don't think it understands that a high rating is not a guarantee of survival of a company while, on the other hand, a lower rating isn't necessarily a guarantee of failure. I guess what I'd have to say is that over the years, the private rating services have not had a bad record either. I think that there has been a lot of change there recently. They, as well as many others in the insurance world, however, have been slow to recognize changes in the industry and the economy, and maybe have been slow to change methods. But I think we've all seen that the rating agencies have reacted to recent changes, such as real estate problems, and maybe even more importantly, to policyholder confidence problems. I'm sure that awareness and reaction will continue into the future.

One thing I think we need is better education of consumers and of agents in the use of ratings. We did something for the first time in February 1991. We did a teleconference for agents' continuing education. Now we're all charged with doing those kinds of things, but for us, at least, the teleconference aspect of it was brand new. One of the components of the teleconference was a section on rating firms and what they're all about. I spent probably half an hour explaining the rating firms, what it is that they each rate individually, how they go about doing their ratings, and then how the agent should use that rating. I think that the rating firms could do more educating. Maybe in the past that wasn't necessary. In today's world, I think it would be very helpful if they did that. Many rating firms are new to the insurance world, and there is a learning curve. I came into insurance from banking, and there are many similarities, but there are many differences as well.

The evaluation process is complicated, whether you're in a rating firm, or in a state department, or whether you're consulting, or whatever you're doing. It is complicated. It requires specialized knowledge, and even people like Joseph Belth recommend relying on firms that are in the business of evaluating insurance companies.

I'm going to talk just a little bit about regulator systems and, more specifically, the Minnesota Department. We've done many things in the last couple of years. We've

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changed methods considerably. We've added staff, and it's a different world than it used to be. We adopted the CAMEL system of rating that was used for years in banking; we adapted it for use in insurance companies. As you may know, CAMEL is an acronym for capital adequacy, asset quality, management ability, earnings performance, and liquidity position. In a nutshell, those are the areas that we look at when we review an insurance company.

Our initial review by the analysts is totally quantitative. We're hooked into the NAIC database in Kansas City. We've developed a program that automatically downloads the information and calculates 35 different ratios. Of course, we use different ratios for life companies and for property and casualty companies. But 35 ratios are distributed among the five CAMEL components. Each ratio is given a numerical rating from 1 to 5, with 1 being the best. Some are weighted, given more importance than others, and all are compared to normal values for like companies. Then each component of the CAMEL is given a rating – again, from 1 to 5 – and finally a composite rating for the company is assigned. This is all done by computer. It includes the current-year ratios and the last three years of ratios. It gives the company's risk-based capital ratio by using Minnesota's risk-based capital formula. It indicates the numbers of unusual IRIS ratios, the NAIC priority, any ratings given to that company by private firms, and the last internal department rating that was assigned. It shows the date of the last on-site examination and any regulatory actions that may have been taken against the company.

By using the composite rating that's finally assigned, we decide which companies need, first of all, more aggressive analysis and set priorities for them. For instance, a new 5 rating would be the first company reviewed. I have to tell you that a 5 is about on the way out. We call the list of 4- and 5-rated companies the FL list. FL stands for Forest Lawn. A company previously rated 5 that is totally restricted as to what kind of business it can do in the state of Minnesota would be prioritized last, as long as it's complying with those restrictions.

The next step is a qualitative analysis, where the analyst does a physical review of the annual statement, any quarterlies that have been filed, CPA reports, actuarial opinions, SEC filings, if any, the rating firm's analyses, and NAIC examiner team reports. We look at the market practices of the company and anything we can get our hands on. This may not be an exclusive list, but we review anything that is available. Depending on those findings, we very often request other items from the company. These may include investment policies, cash-flow testing, asset-liability management policies, and it just depends on what we see as we've done the rest of the analysis. The results from that analysis then are added to the computer output derived earlier, along with any recommendations that the analyst has. Up to that point, only one person is looking at the company and reviewing it. At that point, one of the department actuaries reviews the reserves, and adds an opinion on that.

I should mention that I think we're really fortunate in Minnesota. We have five actuaries, and I think that's unusual for a small insurance department. We have added, in the last month, a valuation actuary, a very experienced person who has been in the industry for 23 years. We have a life actuary and an assistant life actuary. On the property/casualty side, we also have an actuary and an assistant

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actuary. They are an important part of what we do. They help with not only this kind of review and analysis, but also with field examinations.

After the actuary's opinion is added, companies that are rated 3, 4 or 5 are reviewed by what we call the Supervisory Action Review Committee. That consists of the appropriate actuary, the analyst, the chief examiner or audit director, and the assistant commissioner. I have just very recently quit sitting in on all of those meetings. They then go through the review, the analysis which led to the rating. The analyst presents it to the committee and, again, that's a peer-review process. Did you do this? The committee develops recommendations that come to me and to the commissioner. Some companies then are monitored more frequently; very often, quarterly or monthly reports on real estate and commercial mortgage performance are required. We also do quarterly or monthly reports on policy surrenders. That's really been proven to be a good indication of policyholder confidence, or lack of it, in the company. In some cases, we even require weekly liquidity reports. Some of these companies are restricted in writings, particularly the foreign companies doing business in Minnesota. Sometimes we schedule them for targeted exams. We don't do that a lot with foreign companies, but sometimes that's the only way that we can get a good feeling for what's going on.

The other thing we do with our rating is develop a watch list. I tell people we don't have one. In fact, we do. It's not public. Since mid-1991, we've increased that watch list from 90 to 130 companies. Now that's out of 1500 companies doing business in Minnesota. That increase, I think, is due partly to conditions of the industry and the things that are going on in the external world, and it's partly because of upgrading our staff and our computer analysis capability. We also determine the frequency and the scope of domestic examinations with these ratings.

Risk-based capital figures prominently in the capital component of CAMEL for life companies in Minnesota. It was developed in Minnesota in 1990. The task force that worked on it and developed it began with Moody's formula, added to it, and simplified it in some ways. It's been used now for two years, and we require that filing from all life companies licensed in Minnesota. We have found it to be a viable method of identifying weakly capitalized companies. But we also look at it as only one tool. It's not a stand-alone method, and it's not a rating. Many people in the world have hoped that risk-based capital would be all that would ever be needed. You could take a look at one rating, and that would be everything you'd ever need to know. That's not the case.

I'll tell you how we use the NAIC ratings. In the past, we were terribly understaffed. We didn't have computers, and we relied very heavily on the NAIC and its IRIS and its early warning. Now the NAIC is used as a secondary source of information and opinion. Again, I haven't had to appear in front of its committee, but I have been asked to respond on actions that we've taken with domestic companies. So far, all responses that we've given have been considered adequate by the committee. We have also asked for opinions from the NAIC reinsurance staff. That's an area where we – like other insurance departments – may be somewhat weak. So we have asked for assistance there. Now with our increased actuarial capability within the department, I don't think we'll need that staff's assistance as much either.

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How do we use the private ratings? We didn't use them at all in the past. We paid absolutely no attention to them. Now we use them as a source of information as we do our analysis. We take a look at not just the rating, of course, but read the whole report. We very definitely pay attention to any downgrades. As we've seen, even rumors of downgrades can start a company down the slippery slope of surrenders, so we pay attention. When our enforcement division begins getting increased calls about a company, we also start paying more attention to that company. But the biggest use by our department is referring consumers to those ratings. As to our internally developed ratings, we might call them ratings, but they are nonpublic and really are not ratings. Consumers need something, so we tell them where to find the private ratings. We tell them not to rely on one rating, but to review all that are available; and that if they differ, they need to ask questions. We tell them to know what's being rated. The books always tell you what a rating agency rates. We tell them to look at more than one year's rating, preferably three years, and if there are any downgrades, to ask why. We tell them to read the analyst's report and to not just go by the rating itself. We tell agents to use the ratings responsibly, to emphasize their company's positives rather than competitors' negatives.

In summary, I'd say that times have changed. We all know that. Regulation by state departments and by the NAIC has changed. Rating firms have all changed. Also, none of us, even as we change, can stay on top of any company's position and the way it changes on a daily basis. It's fairly obvious that we all have 20/20 hindsight, so when we talk about all the stories that have gone around about private rating firms and so on, they've also gone around about state departments, i.e., state departments can't handle regulation, we're going to need federal regulation. But anybody can look back and see what the problems were and what should have been done. We think that we do a good job in Minnesota, particularly with the changes that we've made in the last couple of years. We do pay more attention to basics, but we're doing it in a much more sophisticated way than we used to. We don't ignore the world, and I think that in the past, regulators had a tendency to do that. We pay attention to many things that we didn't in the past, and that includes other professionals who do the same thing that we do, analyze insurance companies.

MR. PETER F. CHAPMAN: I would like to begin with a few general remarks about a rating system. A rating, no matter who the rater is, would never be taken as a predictor of the success or failure of any insurer. It should be viewed, instead, as being analogous to the underwriting process.

While no one would presume to predict the future life span of a human being by rigorously and objectively applying proven techniques, a good underwriter can place an applicant in an appropriate risk category. Similarly, the purpose of an insurance company rating is strictly the classification of each insurer into a clearly defined risk category.

How many of you have been elated to learn that your child earned an A in school, only to have that elation turn to uncertainty when you learned that nearly everyone in the class also earned an A? You had to have wondered, "How well is my child really doing?"

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Weiss aims to tell you how your insurer is really doing. The "you" in this case is a consumer, an agent, a regulator, a legislator, or even management. And it aims to tell you with unbiased ratings, based on objective measurements that are firmly grounded in hard data.

The Weiss safety rating is intended to identify the 60-70% of insurers that offer average safety and the other 30-40% at either end of the average. Many of us may have forgotten most of the statistics we learned as undergraduates, but surely all of us retain the understanding that 80% of the population can't be above average.

While not explicitly designed to do so, the Weiss numerical ratings have come out in the form of a normal distribution of quality ratings in a random universe. They are designed to identify superior financial security, a higher degree of risk, and the majority in the middle.

It is interesting to note that the ACLI has, on several occasions, argued against increasing limits on guaranty association protection. The burden of the argument has been that higher limits would make the public less safety-conscious, less apt to avoid insurers with the greatest risks of insolvency. I think that most of us can agree that the dollars of risk-averse insurance buyers would be directed to companies that offer the safest fiscal stewardship. And if that is to be done, don't we need rating systems that identify both the strongest and the weakest?

Weiss recommends only companies scoring a B+ or better on its rating system. Companies rated B or B- are considered viable for short-term coverages and for variable products.

Weiss currently rates 1,417 companies that are not in rehabilitation or liquidation and that have material risk exposure. Ninety-seven (6.8%) are recommended; 231 (16.3%) are rated B or B- and, consequently, carry a limited recommendation. An additional 436 (30.8%) are classified as weak or very weak (D+ or lower). The remaining 46.1% are called good or fair.

To compare Weiss ratings with those of other major raters, I took a random sample of 91 companies that had been rated by A.M. Best. Standard & Poor had rated 84 of these companies, Moody's, 54, and Duff & Phelps, 53. Table 1 shows the percentages that each rater put into its top-rated categories.

TABLE 1
Rater Percentages

Rater and Top Categories	# Rated	% in Top Categories
Best (A + +, A +)	91	86%
S&P (AAA, AA +, AA, AA -)	84	88
Moody's (Aaa, Aa1, Aa2, Aa3)	54	65
D&P (AAA, AA +, AA, AA -)	53	92
Weiss (A +, A, A -, B +)	91	35

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The comparatively low percentage of companies in Weiss' top categories is due in large part to the high standards and expectations of financial safety and investment risk prudence that have historically been expected of life insurers.

On the other hand, Weiss rated 7% of the sample as poor or worse (D+ or lower). Using letter grades that convey a similar legend, we see Best (B+ or lower), 5%; S&P (BBB+ or lower), 4%; Moody's (Ba1 or lower), 2%; D&P (BBB+ or lower), 0%.

The Weiss rating system has generated controversy. Before getting into specifics, I would like to exchange some misconceptions with facts.

Fact #1. The Weiss system is not a black box.

It was created and is maintained and updated by experienced analysts. Anyone who acquires a copy of the *Insurance Safety Directory* can read a detailed description of the rating process. In fact, if you have the stomach and the stamina for it, you can find it described in the *Congressional Record*. As we shall see, the process closely parallels the NAIC's risk-based capital formulas. I believe that it represents the state-of-the-art in solvency analysis from public data.

Fact #2. Weiss maintains an open-door policy toward management.

Weiss does not review 5-year plans or entertain accounts of metaphysical miracles that are about to be performed by the new management, or the born-again management, or the reshuffled management.

Weiss does talk to management. On more than one occasion, I have, in my capacity as actuarial consultant, been asked to sit in on such discussions. The conversations are limited to factual information and to considerations that will help to interpret published data. Weiss is grateful for any information that helps to point the way to proper interpretation; in case of ambiguity, it usually gives the insurer the benefit of the doubt.

Fact #3. Weiss does not limit its data sources to statutory statements.

Weiss supplements statutory data with a questionnaire sent to all companies. The questionnaire requests certain information not found in the statement. It also offers the insurer the opportunity to correct any filing errors or inaccuracies.

Fact #4. The Weiss model does not ignore qualitative information.

To the extent that qualitative information can be transformed into a useful algorithm, it is employed. Not all information, of course, can be translated into a quantitative mold. Weiss strives, with maximum objectivity, to use all information that can be reduced to measurement and is relevant to the solvency measurement process.

Having, I hope, cleared up some possible misconceptions, let me move to a description of the rating process (Table 2). It begins with the calculation of two risk-adjusted capital ratios, RACR #1 and #2. Both address the same elements as the Risk-Based Capital (RBC). The factors for RACR #1 are, on balance, slightly higher than those used in the NAIC formula. It measures asset deterioration during a GNP decline at a rate roughly equal to the average of all postwar recessions. RACR #2 uses the decline that would be expected to occur if the single worst recession year continued for three consecutive years.

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TABLE 2
Rating Process

Bonds Quality Category	Weiss RACR #1	Weiss RACR #2	NAIC RBC
1	0.5-0.75%	1-1.5%	0.3%
2	2	5	1
3	5	15	4
4	10	30	9
5	20	60	20
6	20	60	30

In both ratios, the required risk-adjusted capital is divided by the insurer's net resources; these are defined as capital and surplus plus asset-maintenance reserves, voluntary or mandatory, and an allowance for a portion of the dividend liability. Except for items taken from the balance sheets of certain subsidiaries or affiliates, the definition is identical to that of the RBC formula. The numerators are composed primarily of the risk elements that constitute the bulk of RBC.

The RACR #1 percentages are roughly comparable to those of the RBC. They are actually lower for bonds in default. The RACR #2 percentages are significantly higher. This reflects the higher rates of default and the greater loss of asset values under an economic scenario far more drastic than any contemplated by the Advisory Committee or under RACR #1.

MORTGAGES

Both the Weiss and the RBC ratios develop the required risk capital from the company's experience with delinquencies and foreclosures. Weiss calculates a percentage in which the numerator is the sum of mortgages in arrears for 90 days or more and mortgages in process of foreclosure, both at the end of the year; the denominator is the statement value of mortgages on the books at the beginning of the year. The resulting percentage is multiplied by a factor reflecting the estimated loss. This factor is based on economic experience under the specific scenario.

The RBC formula adds mortgages foreclosed during the year to both the numerator and denominator. Each of the two most recent years is compared to insurance industry averages as compiled by the Society. Ratios are applied separately to performing and nonperforming mortgages based, within limits, on the company's experience relative to the industry's.

The two formulas can be compared only by using a few sample assumptions. Table 3 does this. The RBC formula includes all unpaid taxes, so I assumed, following a random sample of statutory findings, that these taxes were 4% of the asset value.

In the two worst cases, the RBC does not increase as rapidly as the Weiss ratio, because the former's formula limits the ratio of company-to-industry experience.

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TABLE 3
Formula Comparison

Assumptions			Risk Capital/Mortgage Asset		
% Delinquent	% in Foreclosure	% Foreclosure	RBC	RACR #1	RACR #2
1.5%	1.0%	1.0%	3.02%	4.17%	6.25%
3.0	2.0	1.5	6.04	8.33	12.50
4.5	3.0	2.0	9.54	12.50	18.75
6.0	4.0	2.5	11.10	16.67	25.00
7.5	5.0	3.0	12.75	20.83	31.25

STOCKS OF SUBSIDIARIES AND AFFILIATES

Defining a subsidiary or affiliate as an entity in which the insurer owns at least 10% of the outstanding common stock, the RBC formula charges the same 30% of the statement value for affiliated as for unaffiliated entities, unless the affiliate or subsidiary is an insurance or investment company. In that case, the charge is increased by the RBC for the affiliate or subsidiary multiplied by the percentage-of-ownership. This additional charge is partially offset by adding the entity's investment reserve to the insurer's net worth.

RACR #1 charges between 25-100% of statement value for all subsidiaries and affiliates. For RACR #2, the range is from 33 to 100%. Both are broad ranges; the value actually used in the Weiss formula will depend on "the financial strength of the affiliate and the prospect of obtaining capital from the affiliate, should the need arise." The latter statement, taken directly from the *Insurance Safety Directory*, emphasizes the positive aspect. On the other hand, a subsidiary of an affiliate likely to require investment or additional capital from the insurer will increase the percentage.

The RBC formula currently requires 50% of the statement value of property and casualty insurers for RBC, in lieu of an as yet undeveloped formula. Almost all life insurance subsidiaries and affiliates will have RBC between 50-150% of statement value. This will be reduced by credits for asset-valuation reserves and dividend liabilities.

My hunch, and it is purely a hunch, is that RBC and RACR #1 and #2 will, for subsidiaries and affiliates, be substantially similar with the majority in the 75-100% range.

LIFE INSURANCE

The C-2 risk is expressed in both RACRs as 25% of tabular cost. The RBC formula ties the value to the magnitude of the amount at risk and to the line of business (Table 4).

If the average age of the in-force business is between 45-50, and the business is 90% male, RACR #1 and #2 are between \$1.06 and \$1.19 per \$1000 at risk, if all the reserves are on the 1980 CSO table. For companies with large amounts of in-force business, many reserves on old tables, and big volumes of group and credit

insurance, the RACRs will be redundant, compared with RBC. In the \$1-5 billion range, if it's mostly new ordinary business, the results will be substantially similar.

TABLE 4
Amount of Risk Tied to Line of Business

Amount at Risk (\$Billion)	RBC C-2 Factor/\$1000 at Risk	
	Ordinary & Individual	Group & Credit
1	\$1.25	\$1.00
5	1.13	0.84
10	0.90	0.72
25	0.81	0.65
50	0.71	0.57

ACCIDENT & HEALTH INSURANCE

Both RACRs use a C-2 charge of 25% of premium for individual health insurance. The charges are 10-15% of premium for group A&H for RACR #1 and RACR #2, respectively. Whether the RBC charges are higher or lower depends on the volume and type of insurance written.

The RBC charge for individual A&H goes from 8% of premium for a benefit such as accidental death and dismemberment or hospital room and board, to up to 35% if the entire premium is for noncancellable disability income and the amount is less than \$50 million. In addition, the RBC formula calls for 5% of the disabled life reserve. In general, if most of the business is individual disability income, the C-2s will probably be similar.

Because of the higher charge for LTD premiums and the substantial disabled life reserves that this line can generate, the RBC C-2 for group A&H will be higher than either of the RACRs, unless the volume of LTD premium is small.

For other assets, such as real estate, preferred stock, options and futures, royalties, leases, limited partnerships, reinsurance receivables, etc., the various risk capital requirements are similar. All recognize the C-3 risk by comparing the cash-out provisions of GICs and deferred annuities with the maturities distribution of the bond portfolio. Weiss also reviews filings under New York's Regulation 126 and plans to review the report of the valuation actuary if the insurer makes it available.

Unlike RBC, the RACRs do not consider covariance adjustments, asset concentration, the number of bond issuers, and the risk of guaranty fund assessments (C-4).

A ratio of 1 or more on RACR #1 means that the company's net resources, as previously defined, are at least equal to its risk-adjusted capital. The following results were taken from the ratings, based on the 1991 annual statements; they are limited to companies not currently in rehabilitation or liquidation that have at least \$100 million of assets (Table 5).

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TABLE 5
RACR #1 Results

RACR #1	# of Companies	% of Total
Less than 1	98	18.4%
1.00 - 1.49	158	29.6
1.50 - 1.99	109	20.4
2 or more	169	31.6
Total	534	100.0

The Advisory Group that developed RBC tested 674 companies with assets of \$50 million or more and found that 12.8% of them had adjusted net worths that were less than the RBC (13.3% if companies with assets of \$5 billion or more are excluded). The RACR #1 test appears to be somewhat more severe than the RBC.

In view of the severity of its economic scenario, it is not surprising that RACR #2 produces higher capital requirements than RACR #1. Of the 534 companies studied, 237 (44.4%) had net resources below the required amount. Only 94 companies (17.6%) had net resources of more than twice the amount of risk-adjusted capital.

Because of the severity of RACR #2, however, net resources of 50% of the formula result are considered adequate. Net resources of 100% of the formula result will score 7 points on a scale of 10. By contrast, a company whose RBC ratio is less than 100% will be required to take remedial action.

THE WEISS INDICES

Weiss uses five indices including RACR #2. All are assigned numerical values on a scale from 0 to 10. A score of 7 or higher is considered strong.

The other four indices are:

- **Investment Safety Index**
This is the asset C-1 risk as measured by both RACRs. Emphasis is on the more severe economic scenario.
- **Profitability Index**
A consistent pattern of statutory earnings is the soundest way to keep statutory surplus in line with growing liabilities. The rating is the product of an analysis of the 5-year earnings history depicted on page 14 of the statement. Results are analyzed for consistency, growth and return on equity.
- **Policy Leverage Index**
The numerical score is based on a series of ratios of premiums to net resources.
- **Stability Index**
While this index has roughly the same goal as IRIS ratios 9-12, it uses far more ratios. Both the stability index and the IRIS ratios seek to gauge the insurer's ability to stick to a marketing and operating strategy. The index includes

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measurements of the distribution of premiums by line of business and investments by asset category. The highest index values go to those insurers with the least deviations from year to year.

The five indices are combined and adjusted to consider

- The RACR #1 ratio
- Reinsurance transactions (The adjustment considers the financial strength of the reinsurer and the company's history of surplus relief utilization.)
- The availability of financial support from a related entity
- Liquidity

A statistical distribution of the numerical ratings is then prepared. After adjustment to avoid skewing at either extreme, the letter grades are assigned.

The rating model is huge. Its size and complexity are equivalent to the econometric models used by the Federal Reserve or the Wharton School.

Weiss runs reality checks on the results. Any anomalous results do not result in a qualitative adjustment for a handful of companies. They are, instead, used to modify the model itself. In this way, all companies in similar circumstances are sure to be treated evenhandedly. The 1991 results of 1,417 rated insurers are shown in Table 6.

TABLE 6
1991 Results

Excellent (Recommended)			Good		
A+	9	0.6%	B	123	8.7%
A	22	1.6	B-	108	7.6
A-	25	1.8			
B+	41	2.9			
Total	97	6.8%		231	16.4%

Fair			Weak			Very Weak		
C+	85	6.0%	D+	160	11.3%	E+	43	3.0%
C	284	20.0	D	155	10.9	E	32	2.3
C-	284	20.0	D-	43	3.0	E-	3	0.2
Total	653	46.1%		358	25.3%		78	5.5%

MR. LARRY A. BROSSMAN: The insolvencies of Baldwin-United, Mission, American Mutual, and Integrated Resources all occurred between 1983-89. They were all billion-dollar failures, except for American Mutual, which was about \$500 million. Some are still going on, like Mission, on the reinsurance side. These insolvencies created the impetus for a new rating system, a better predictive tool, if you please, because none was called by the rating systems in place at that time.

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Many people think that the thing that's happened in the insurance industry is essentially that insurance companies wandered off the path and started to play games with junk bonds and real estate. But those investments were attempts to solve other problems facing the industry. One factor is that the basic nature of the life, health and annuity industry has changes; it is becoming an investment product business. Almost 50% of the cash flow coming into the industry today is coming from annuity-type products: Single-Premium Deferred Annuities (SPDAs), flexible annuities, GICs, structured settlements, single-premium immediate annuities, and terminal funding. It's becoming a spread business. That's why financial rating organizations are in the business.

Another major factor is that there has been pressure on profits. In 1984, stock companies were earning about 15% on equity with capital gains factored in. Profits in 1986 started to drop below the 10% range and now fluctuate in the 7-9% range. A mature industry is having trouble attracting capital and retaining capital.

A claims-paying-ability rating is an independent evaluation of an insurance company's ability to meet its future obligations under the contracts and products it sells. A claims-paying-ability rating applies to contracts already issued and those to be issued in the future.

The Duff & Phelps rating scale (Table 7) is exactly the same as S&P's, and for all intents and purposes, is exactly the same as Moody's, except it uses 1, 2 and 3 instead of plus and minus.

TABLE 7
Duff & Phelps Insurance Company
Claims-Paying-Ability Rating Scale

AAA	BB + BB BB -
AA + AA AA -	B + B B -
A + A A -	CCC
BBB + BBB BBB -	

Our process has six steps. After reviewing information, a Duff & Phelps team visits the insurance company. If necessary, selected company officials visit with members of the Duff & Phelps rating committee in Chicago.

Once published, ratings are reviewed whenever a significant event occurs, but at least quarterly, and a full-scale review is conducted on an annual basis.

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In my opinion, based on 25 years on the operating side of the business, you cannot evaluate an insurance company in the current environment and create a rating that has predictive value without having ongoing access to management and a commitment from management to continue to supply you with information. You cannot fully rate companies off statutory statements. Statutory quarterlies are helpful but do not give you the full, ongoing information you need. In my opinion, you need a system that is both quantitative and qualitative. People ask if our system is quantitative or qualitative. Which is more important? We can rate larger companies on quantitative data easier than we can small companies. The smaller the company, the more important it is to be able to have access to management.

A management review is done in trying to assess things when we visit a company. Is the company run by people who know the insurance business? Does the company have a plan? We look at management depth, asset-liability matching and underwriting quality. Is the company a niche or full-line player?

What we are trying to determine is the culture. Does the company have any purpose for existing other than making money? This information is helpful in determining how that company will act under competitive pressure. Does the company have a business plan, and how does it distribute products? We also consider outside factors, such as competition, media, regulation, and politics. What we are trying to determine is the overall risk profile of the company.

One of the things that's happening in the life insurance business today is that many companies in an industry founded on providing guarantees, now sell products providing few guarantees, and in some cases, no guarantees.

Some of the items we look at in our investment analysis include the investment philosophy and strategy, noninvestment-grade bonds, troubled mortgages and real estate, direct placement experience, amount and type of equities, investments in subsidiaries, other investments, and the asset-liability matching program.

Junk bonds had been a major problem for life companies, but junk bonds are yesterday's problem. The junk-bond market has risen, allowing most companies to bring their junk-bond holdings into normal ranges. Had the market not risen, I'm afraid a number of other major companies would have also been taken over by the states, and the pressure for federal regulation would have become very severe.

Real estate is the key issue facing the industry today. If companies are going to be brought down, they're going to be brought down by real estate. In evaluating real estate, we look for three things: the size of the company's portfolio, the quality of the portfolio, and the company's ability to manage that portfolio. Here is the way insurance real estate portfolio's traditionally were put together. The loan was only up to 75% of the real estate value. There were no construction loans. Commercial loans were backed by a core of leases. There was diversification. If the portfolio was put together by using these guidelines, it should be a quality portfolio.

We do have excellent normative data in the real estate area coming from the ACLI. It makes its information available to us, and we norm to it. What we try to determine

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for a particular company is whether that company's experience is better or worse than that of other companies.

Some additional factors that we look at in the rating process include asset quality, cash-flow analysis, liquidity analysis, market-value adjustment, callability of business, historic retention, total risk profile, and the distribution system. Distribution is becoming an increasingly important factor in our evaluation process.

I would like to comment briefly on risk-based capital. We view it as just a tool. The eternal search goes on for the single number, the single two words, or the single test for an insurance company that will give you the answer as to the company's financial strength. We find risk-based capital to be helpful information, but we do not use it in our reports, because the NAIC does not want us to. If we're given the data, we factor it in with our other information. Essentially, what we're interested in is how a company manages its capital and what its own formula is.

I would like to summarize for you what our ratings are and what they are not. We believe our rating methodology, which combines quantitative reviews with qualitative analysis, is the best methodology for rating the financial strength of insurance companies. Our ratings are reviewed on an ongoing basis and therefore are responsive to current changes. Since Duff & Phelps, S&P and Moody's all use comparable rating scales, there is a basis for comparison. Also, since Duff & Phelps rates other financial institutions and products by using the same methodology, our ratings can be used for cross-industry comparison.

I'd like to comment now on what our ratings don't do. One thing that is frequently misunderstood is that our ratings do not tell you which company has the best product, rate or features. We have a national service line. It's not an 800 number, but it's not a 900 number either, and anyone can call us and get a rating on a company and learn what that rating means. Callers can buy a full report, or contact the company for the report, or buy our complete service. Callers will frequently ask about specific products; for example, is this the best annuity product? We don't rate product quality. Many well-rated companies sell products that you wouldn't buy, sell or recommend, but nevertheless, from our standpoint, they are financially strong. Differentiating among products continues to be the role of the agent, the consultant and the "Jane Bryant Quinns."

I would like to conclude by saying that we view the life insurance industry as strong, as contrasted with other types of financial institutions with which it competes. What we mean by that is we see the life insurance business as an AA-type business. Approximately 80-85% of the cash flow coming into the life insurance industry is coming into companies rated in the AA category (AA- or higher), and we think that's a very strong industry. There are real differences among insurance companies, however, in their financial strength, and those differences are widening. We've seen companies that have continued to make 18-25% returns on fully allocated capital, and yet we see companies in the lower quadrant making 5% or lower returns on capital. Real estate and less-than-investment-grade bonds currently are an area of concern for many insurance companies, but these types of investments will continue to be part of insurance company portfolios for two reasons. One is because they were not the basic problem, but were merely attempts to solve competitive problems

facing the industry. Second, in proper mix and measure, such investments are going to be necessary to get the future returns needed to be competitive. There is an increasing need for better tools to evaluate the financial strength of insurance companies, and insurance company claims-paying-ability ratings, particularly ours, are one of those tools.

MR. MARK P. MUELLER: I would like to change directions and talk about the investment impact of risk-based capital. I'm taking risk-based capital as a given and trying to evaluate its effects. Before I launch into that, though, I want to take a moment to thank all the people involved in the RBC Working Group. They had a tough charge, and I think they did a good job. That's what comes out of my analysis here.

My presentation has two parts. The first is a quick overview of the C-1 component of RBC. Then to quantify the effects, I'll look at a simple model book of business. The first issue is what drives C-1 RBC. Obviously, it's the asset mix, but different asset classes have special factors, too. For instance, bonds have a "number-of-issuers" factor that we'll get back to later. Mortgages have a delinquency and foreclosure rate adjustment factor that compares your company's delinquency experience to that of the industry's. I think many of you will come up with factors over one when you do the calculation, because your company's experience will be from 1991 and 1992, and the industry's will be for 1990 and 1991, so it doesn't bode well.

Common stock has a very high factor. It's expensive to hold. Schedule BA assets are expensive to hold, too. As we were looking at the industry, that was one of the things that popped out. Some companies have quite a few Schedule BA assets.

There's an adjustment factor for the 10 largest credit exposures. It looks at the aggregate exposure of all types of bonds, stocks, whatever, and under the recent revisions of the rules, excludes all NAIC #1 bonds. The penalty is that you double-weight those 10 exposures. So those are some of the main things that will drive the C-1 component.

On the other hand, RBC misses several important factors. Perhaps most conspicuous by its absence is liquidity risk. There's nothing about it in the RBC rules. It's a bit ironic, since liquidity crises were at the root of motivating RBC. But there's really no theoretical basis for coming up with a factor, at least not that I'm aware of, and that's a basic impediment here. Other things RBC misses are imbedded options. For example, you can have a callable bond or a mortgage-backed security with a prepayment right. Those are not reflected, although they would be captured in the valuation actuary's opinion. There's nothing in the formula, however. Mortgage-backed securities, for instance, are beneficiaries of this, because the extra yield you get for that prepayment risk is free as far as the RBC formula goes. Swaps are not really addressed. Swaps are any notional-amount contracts, and they have both C-1 and C-3 implications, but they're only included in one of the sensitivity tests, although that's something that may affect you if you're a "borderline" company. It also misses derivatives and foreign exchange risk. They were not considered mainstream and so were deferred until later while the committee did more important work.

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I have suggestions on how to manage your RBC ratio and what you can do to increase it. Let me just say here that the quickest and easiest thing to do, if your ratio is too low, is to upgrade your bond portfolio. The C-1 component is likely to be a very large fraction of the total RBC, so by upgrading your bonds, you can improve your RBC ratio 5-10% without stressing yourself too much. The only other point I'd like to make here is that policy loans are considered assets and have a zero factor, so that's an interesting play. Possibly you could encourage policy loans if they're offered at market rates.

I'm assuming that you're familiar with the basics of the RBC rules. I'd like to move onto their impact on investing and evaluate that and try to quantify it. I've put together a simple model company, a model book of business really. The overall conclusion is that if you're satisfied with your RBC ratio, the risk-based capital rules won't, by themselves, force you to drastically change the way you invest. Obviously, they will have some impact, but they don't force you into top-quality bonds or anything like that. This model basically captures the trade-off between higher-yielding, but higher-RBC assets versus lower-yielding, lower-RBC assets. I'll try to put some numbers on that trade-off. I modeled the simplest possible liability, a seven-year lockup. The numbers are meant to reflect the Single Premium Deferred Annuity (SPDA) market last summer. The structure is very similar to a GIC, as well. Think of it in those terms if you prefer.

Basically you're crediting 6.5% a year, with 4% acquisition costs that are recouped over the seven years of the contract. Assets are all invested in a single asset class. That means you're going to put all your funds into BBB bonds and see what the effect is. Do that with one asset class after another. The assets are as simple as possible. They're matching the liabilities and have zero coupons. Everything here is on a statutory basis so the cash flows aren't really all that critical. There is a static interest environment. I want to keep everything simple, and then layer the risk-based capital rules on top. The way the capital requirements work is that management is going to choose an RBC ratio. I like 1.5 myself, and so that's what I'm going to be using as an example. That's fixed and is a target that has to be met. The capital cost is set by the market, and I'm showing 12% or 15% a year. Fifteen seems to be a popular number, so I'll talk to that.

The point of all this is to find the asset yield that's necessary to pay for the acquisition costs and the capital costs and fund the liabilities. Let me first say that the capital cash flow has the usual statutory type of cash-flow pattern. We have the large initial up-front capital cost. You slowly get money back as your assets grow faster than your liabilities, and then there is a large capital release at the end. My approach is to find the target asset level and to track that.

The various RBC components are, at least in a simplified model, proportional to the exposure. C-1 is proportional to the assets, and C-2 is proportional to the liabilities, and so forth. For the special case of annuities, the C-2 component is zero. This helps a lot, because it simplifies the risk-based capital formula down to a linear form, and the formula for the required assets is not too complicated. You can do it in the general case, too, but it's much messier. The point of tracking this asset target is that it automatically keeps my risk-based capital ratio where it belongs.

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First of all, I need to disclaim the result of this model because, obviously, it's a simplified model and it's only meant to be illustrative. It could be the basis of a more realistic model. Since it excludes asset defaults and mortgage prepayments and bond calls, these have to be factored in separately. The numbers I'm showing reflect no ongoing expenses, so that has to be factored in, too. The way to use these results is to take the tabulated spread, add on your company's ongoing expenses as a percentage of assets, 25, 50 basis points, whatever, and compare that to what's available in the marketplace on an option-adjusted basis and then give that a haircut for a default risk. Table 8 shows the RBC indifference spreads.

TABLE 8*
RBC Indifference Spreads to U.S. Treasuries:
Spread Needed to Earn the ROE Target
(in basis points per year)

RBC Ratio	1.0	1.0	1.5	1.5	2.0	2.0
ROE Target (per year)	12%	15%	12%	15%	12%	15%
Asset Class						
Bonds						
NAIC Exempt	34	50	36	53	38	56
NAIC 1	35	52	38	56	40	60
NAIC 2	39	57	43	64	47	70
NAIC 3	52	79	63	96	73	113
NAIC 4	74	115	96	149	117	184
NAIC 5	123	193	169	267	214	339
Commercial Mortgages	47	71	56	85	64	99
Preferred Stock						
NAIC 1	44	66	51	78	58	89
NAIC 2	47	71	56	85	64	99
Number of issuers factor is 1.0						
Mortgage experience adjustment factor is 1.0						

* The following disclaimer is for Tables 8 & 9: These tables are based on or derived from information generally available to the public from sources we believe to be reliable. No representation is made that it is accurate or complete. Morgan Stanley & Co. Incorporated and others associated with it may have positions in, and may effect transactions in, securities and instruments of insurers mentioned herein and may also perform or seek to perform investment banking services for the issuers of such securities and instruments. The following has been prepared solely for information purposes and is not a solicitation of an offer to buy or sell any security or instrument or to participate in any trading strategy. Past results are not necessarily indicative of future results. Price and availability are subject to change without notice. To our readers worldwide: This publication has been issued by Morgan Stanley & Co. Incorporated, approved by Morgan Stanley International, a member of the Securities Association, and by Morgan Stanley Japan Ltd. The investments discussed or recommended may be unsuitable for certain private investors depending on their specific investment objectives and financial positions. We recommend that such investors obtain the advice of their Morgan Stanley International or Morgan Stanley Japan Ltd. representative about the investments concerned.

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These are the answers from the model. You pick your RBC target ratio, like 1.5 and your ROE requirement, say 15% per year. Then any of these various bonds, for example, if they yield Treasuries, plus the indicated spread, will achieve your targets. You can keep a 1.5 RBC ratio. You'll make 15% a year on that capital. You'll fund your liabilities and recoup your expenses. These spreads, by the way, are on a bond-equivalent-yield basis.

The points I'd like to make about this table are, first, that the general level of the numbers is driven by your liability-crediting rate. If these numbers seem too high to you, a crediting rate of 25 basis points less will reduce them by about 25 basis points. It's also driven by the period over which you recoup your acquisition expenses (seven years). Some companies are more aggressive than that. But the structure and the relationships between the spreads are driven by the RBC formulas, and they seem reasonable, at least to me.

One point I do want to make is that the spread requirements here are not proportional to the C-1 factors. So, for instance, the NAIC #3 bonds have a 4% requirement, and the NAIC #2 bonds have a 1% requirement. That's four times the amount of capital as far as the C-1 component goes, but there's nothing like four times the spread. It's a much smaller ratio. You can understand that by realizing that the C-1 component is just a fraction of the total RBC requirement, and that fact has a dampening effect on the "spread-versus-factor" relationship. It's possible to back out the C-1 effect by considering the exempt bonds. These are treasuries and GNMMAs, etc. They do not require any C-1 contribution, so in the case of the 1.5 RBC ratio and the 15% ROE target, if you subtract 53 basis points from that column, what you're left with is the C-1 effect for these bonds. Those numbers are proportional to the C-1 factors. Of course, you need a spread, even if you don't have the C-1 contribution, because you have C-3 and C-4 RBC, and you have to recoup your acquisition costs.

I wanted to show a number of sensitivities, and perhaps the most important is the "number-of-issuers" factor. If you're from a big company, it doesn't matter as much as it does to a small or medium-sized company. Then you might find it's really quite substantial. Table 9 shows the effect of increasing the number-of-issuers factor. There's no effect on exempts, of course, a relatively small effect on high-quality bonds, and a much larger effect on lower-quality bonds. You've basically replaced the original C-1 factor with the number-of-issuers factor times the C-1 factor. This is going to be a real barrier to smaller companies being involved in lower-quality bonds.

Obviously, the acquisition expense is critical to these spreads, and one basis point there is worth 17 basis points in the spread. The period over which you're going to recoup your acquisition costs is also critical. Shortening that to five years increases the spreads by 20 basis points across the board. If you lengthen it to ten years, you save 12 basis points across the board.

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TABLE 9*
 RBC Indifference Spreads:
 Effect of the Number of Issuers
 (in basis points per year)

RBC Ratio	1.0	1.0	1.5	1.5	2.0	2.0
ROE Target (per year)	12%	15%	12%	15%	12%	15%
Number of Issuers Factor: 1.0						
Bond Category						
NAIC Exempt	34	50	36	53	38	56
NAIC 1	35	52	38	56	40	60
NAIC 2	39	57	43	64	47	70
NAIC 3	52	79	63	96	73	113
NAIC 4	74	115	96	149	117	184
NAIC 5	123	193	169	267	214	339
Number of Issuers Factor: 1.5						
Bond Category						
NAIC Exempt	34	50	36	53	38	56
NAIC 1	36	53	39	58	42	62
NAIC 2	41	61	46	69	51	77
NAIC 3	61	93	76	117	91	141
NAIC 4	94	147	126	197	157	248
NAIC 5	168	265	235	373	302	479
Number of Issuers Factor: 2.0						
Bond Category						
NAIC Exempt	34	50	36	53	38	56
NAIC 1	37	54	40	59	43	64
NAIC 2	43	64	49	74	55	84
NAIC 3	70	107	89	139	108	170
NAIC 4	114	179	156	245	197	311
NAIC 5	212	336	301	478	389	619
Mortgage experience adjustment factor is 1.0						

* See disclaimer on page 1580.