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COMMUNICATIONS BETWEEN THE ACTUARY AND THE INVESTMENT OFFICER AND HIS DEPARTMENT

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Recorder: GLENN SCOTT SADLER

- Why they are important?
- Impact on valuation, pricing, product design, asset-liability matching, tax strategies, cash flow forecasting and monitoring.
- What actuarial information does the investment officer need?
- What investment information does the actuary need?
- How is information communicated? Barriers and challenges?
- Issues will be discussed from perspective of investment, actuarial and corporate viewpoints. Audience participation will be welcomed.

MR. ROBERT H. STAPLEFORD: We are going to look at the communications process between the investment area and the actuarial functions, primarily from a life company perspective. While there is a fair amount of relevance to the pension side as well, our focus will be primarily on the life side. How we have chosen to address the subject is to view it as a triangle. In one corner you have the Investment Actuary, in another corner you have the Corporate Actuary, and in the third corner you have the Product Actuary. Within the Investment function, we are going to have two different perspectives. One is that of an actuary working in the investment area, and the second is a nonactuary investment professional. You will see from their remarks that the members of the panel are well aware of the importance of the communications process between the investment and actuarial functions.

We will start off with Jim Senn who is going to talk about the communications process from the perspective of the Product Actuary. Jim will be followed by John Guthrie, a guest of the Society, who is going to talk about the communications process from the perspective of the Investment Officer. John is not an actuary, and so he will tell you how the investment people really see it. Vic Moses will follow that with the perspective from the corporate side. Ken Stewart had a last minute change in his plans and cannot be here. He was good enough to send me a copy of his presentation. I have incorporated a few of my thoughts into Ken's talk and will look at communications from the perspective of an actuary working in investments.

Our first speaker will be Jim Senn. Jim is a graduate of the University of Waterloo and, since graduation, has worked for the Manufacturers for over ten years. He spent his first three years in the corporate area before moving on to the Individual Product Development Area. He has worked on insurance and annuity product development and pricing, in both the Canadian and U.S. division of the Manufacturers. Jim's current role is Assistant Vice-President, Money Products, which involves being responsible for the product design and pricing, rate setting, marketing, and promotion of individual annuity products for Manufactuers' Canadian division. Jim will start off the presentations talking about the communications process from the perspective of the Product Actuary.

MR. JAMES R. SENN: I want to start out by telling you a little more about the Manufacturers Life. Manufacturers is a large mutual insurance company doing business in Canada, the U.S., the

* Mr. Guthrie, not a member of the Society, is Vice President at The New England in Boston, Massachusetts.

U.K., the Caribbean, and the Far East. We are the largest life company in Canada in terms of assets, with assets over $23 billion. I work in the marketing area of Canadian operations, with responsibility for pricing, product design, and marketing of annuity products. My product lines will generate about $700 million of premium income in 1989.

My perspective on today's issue is that of a marketing actuary, and my comments will focus on annuities rather than insurance. I am responsible for products which are, to a very great extent, commodities. They cannot be differentiated as much as life products. For immediate annuities, a dollar of monthly income is a dollar of monthly income. For deferred annuities, a five year compound GIC rate is a five year compound GIC rate. In Canada at least, commission rates for these types of products are very standardized. What results is a market which is highly competitive with very thin margins and one in which underlying investment yield is extremely important to competitiveness. Therefore, my ability to succeed is directly dependent on the success of the investment department. Its success is also dependent on my ability to bring in money, but not to the same extent. Remember the people in the department have $23 billion to handle as it is, so managing what we have would keep them busy on its own.

What I want to do now is describe what the results of this communication ought to be. For my part, my needs are pretty obvious. I need to know the yields to use for rate setting, but I am also interested in the likelihood and the possible direction of rate movement. I know no one can accurately predict these things, but I need to know what the investment area people think will happen, and how strongly they feel about their predictions. I also want to know what they can find out about the activity of our competitors in the investment market. This can often provide insight into our competition's marketing and rate setting activity. I also want to know whether we think this is a good, bad, or indifferent time to bring in money. To me it is always a good time. I am not trying to over simplify, but any of you who are familiar in dealing with agents or branch managers will understand that they frequently interpret our competitive position as simply a statement of whether we want money or not. I am the one who takes the heat from the field if our rates are uncompetitive, so I need to know how to explain our competitive positioning versus the rest of the market.

Looking at the communication problem from the other direction, there are several things that I believe the investment area should expect to find out from me. They need to know our current competitive position and how our rate movements compare with the rest of the market. We need to discuss how rational or irrational the market may appear and how we appear relative to that market. The product marketplace sometimes exhibits whims and quirks that need to be examined and understood. It is my responsibility to observe and understand the market, and then pass that information on to the investment officer.

Given the above goals for the process, what are the barriers to effective communication? A few are as follow:

- physical location
- experiences
- terminology
- time horizons
- attitudes and prejudices
- measures of success

Aside from that, it is really a piece of cake.

In our company the physical separation of the investment area from marketing operations makes it hard to establish open lines of communication. It tends to restrict casual communication and cause individuals in the two areas to rely on more formal means. Imagine how strong your relationship with your wife or husband would be if you only talked to her or him once a month for two hours in a room full of people. I use this analogy purposely, because I think it is a very useful context in which to view our topic.

The experiential background of actuaries and investment officers is usually very different. The actuary has traditionally focused almost entirely on the liability side of the balance sheet. This has been changing in recent times as more and more actuaries become much more actively involved with investment management techniques. I am sure this involvement has not always been viewed positively by the investment areas, just as there are some actuaries in this room who would be somewhat miffed at the prospect of bond traders studying up on life contingencies and product pricing techniques.

The communication process can only work if turf wars are avoided. Terminology and jargon can be a major barrier to communication. I can still remember my first dealings with bond traders early in my career, and the confusion of trying to figure out why Bruce said the market was going up when he gave me lower rates. Of course, the answer is that he was talking about bond prices. This example is pretty obvious, but the lesson it teaches us is very important. Make sure there is a common language for communication, and that any special terminology has the same meaning to both sides. As David Carpenter suggested at the General Session, I would encourage you to learn their terminology, rather than inflicting your own on them.

The time horizons in the two areas can be very different also. In our company we have a very active trading philosophy with respect to our bond portfolio. On total Canadian bond investments of around $3 billion, our trading volume in 1989 will likely be in the $12 to $15 billion range. That is, we will turn the portfolio over about four to five times. Traders are constantly monitoring the shape of the yield curve and quality spreads to look for opportunities. It is a hectic life, far more so than the marketing actuary's, no matter how harassed he may feel by field enquiries and complaints. The bond trader is forced into a very short-term time frame, and it is understandable that he may not understand the actuary's somewhat longer one.

Attitudes and prejudice also may need some attention. Actuaries still have reputations to live down. We may not think that it is fair, but it is a fact. Both sides need to shed their preconceived notions about the other, in order for the communication process to work.

The last barrier to communications that I want to mention is measures of success. For a professional sports teams to succeed, they all need to be working together for the same goal: to win. That is pretty obvious. It is not usually so obvious that marketing actuaries and investment officers are working together for the same goal. I urge you to think about this in your own organizations, and about how it affects the quality of your communications.

Now having discussed all the reasons that communication may not work, let me tell you a little about the mechanisms we have put into place at Manufacturers to try to avoid these pitfalls.

We have a series of three committees at different levels in the organization to ensure appropriate attention is paid to the Investment/Insurance Operation interface. These committees meet at various frequencies depending on their role. The most junior committee is focused on operational issues, while the most senior one is a policy setting group. In my department, we are also in contact with the investment area on a very regular basis to discuss volumes of business, activity in the marketplace, interest rate movements, and the weather. I include the latter to make a point. We should not only be contacting the investment area when we need something. I encourage my pricing actuary to keep in close contact with the investment area at all times, not just when we need a special quote. No one likes to feel that he or she is only a friend in time of need, rather that a friend indeed.

I mentioned earlier the importance of performance measures. We have established a notional fund for new money products. The performance of the assets in this fund can therefore be monitored separately. We have in place a mechanism to compare actual earnings in the fund to the yield rates I am quoted for use in the rate setting process. Our business plan identifies target liability spreads that I am expected to manage the line to achieve. The overall profit for the line is the spread I make, adjusted to reflect any differences between the yield rates I was quoted and those that were actually earned. We focus more on the total profit, not necessarily where it's coming from.

In conclusion, the critical factor for successful communication, and for that matter, bottom line success, is eliminating the "we/them" attitude. This is not a revelation. I believe that the only way to do this is to design reporting mechanisms that integrate liability and asset profit measures into a common goal. Each side's remuneration should depend on total performance. Unless you can do this, you will continue to be faced with communication problems, because the proper incentive is not there. The team all has to define winning in the same way.

PANEL DISCUSSION

MR. STAPLEFORD: We are now going to hear about the communication perspective from that of an investment officer working in The New England. John Guthrie attended Boston College where he received a BS degree in 1965, and an MBA in 1967. He received his Chartered Financial Analyst designation in 1976. He started his career working as a stock broker, then a common stock analyst, before joining The New England in 1970. He worked in the private placement department until 1983, when he was selected to form a new department, the Portfolio Strategy Group, which has 8 professionals working in it, including 4 actuaries. The Portfolio Strategy Department is responsible for managing the portfolios which support the insurance and pension products of The New England and its affiliates. It entails providing investment input into product design and pricing, developing product applications for new investment vehicles and strategies, managing the asset liability mismatch risk, and communicating new trends in the product and investment areas. John is also president of The New England Portfolio Advisors, a subsidiary that provides asset allocation services to pension plans. He has been appointed to the Investment Committee of the Life Office Management Association (LOMA), and he is currently chairman of that committee. John also serves on the Board of Directors of Valley Resources Inc., an American Stock Exchange listed firm located in Rhode Island, which is primarily engaged in the distribution of natural gas. John is going to talk about the communications process from the perspective of the investment officer.

MR. JOHN F. GUTHRIE, JR.: I had a speech prepared but I have changed it somewhat. I decided that I was going to rewrite this because I had written a speech explaining how important it was for the actuaries and the investment people to communicate, how there had been a real revolution in our business in the last five years, how our products were much more investment oriented, how the business had become much more competitive and how Universal Life had made people much more conscious of the returns they were making on the investment in their life insurance policy. But then as I was thinking about, I realized that this was not so much a revolution that had occurred so much in the last five years, as really something that happened as much as ten years ago. While it seems like only yesterday, in fact it has been a long time that we have had this new operating structure in the industry. Also, there probably are a lot of actuaries in this room who came into the business at a time when the dealings with the investment business were close, and they have not had to go through breaking down those first barriers. But if you go back ten years ago, we really did not even know any of the actuaries in our company. Today we have four actuaries who work in the investment department and a number of actuaries around the company who work very closely with the investment people on product pricing and product design and investment strategy. So, I think that this is not really a new trend. In fact, ten years ago, if an investment officer spoke at a Society meeting, that would have been revolutionary, and five years ago, it would have been still a bit of a novelty. There are so many actuaries that have come over to the investment side that the fact that I am speaking as an investment officer and not as an actuary is more of a novelty than the fact that there is an investment officer here. In fact, there are so many actuaries coming over to the investment side, especially in the portfolio strategy area where I work, that I feel a little bit like a dinosaur not having the FSA designation. However, as I think of the choice between becoming extinct and going through the actuarial exam program, extinction looks better!

After realizing that it has really been so long since all these changes have taken place, I thought that rather than just talking about how important communication was, I would take one aspect of that communication, and talk about that. What I will talk about is performance measurement, and how we can look at performance measurement and how you people can measure the performance of the investment people.

I will start by looking back on how product pricing and how investment performance was measured. If you go back 20 years ago, the way products were priced was the product actuary would meet the investment officer on the elevator and he would ask him where interest rates were. The investment officer might be investing at 9%, but he would want to look good so he would think of the highest yielding investment he had done in the last few weeks, which usually meant a very long maturity or a very low quality, and he would say "Well we did such and such a deal two weeks ago at 9.5%." Even though rates were at 9%, all the actuary heard was 9.5% and he would put that in his pricing. But the investment people are not all that stupid, and after about ten years of doing that, they finally caught on to what was happening. So they would meet the actuary and they would say "Well, rates are sort of depressed right now, and all we can get is 8.5%," even when they were getting 9%. That worked for about a week or so because the actuaries were even smarter, and quickly figured out what was going on. So they said, "Well, if he is saying

8.5% that probably means the market is at 9%, and he has always been better than market," and so they ended up pricing at 9.5% anyway.

What we now do is we have committees who meet regularly who include actuaries and investment people. To the extent committees are not meeting, there are people talking constantly. The actuaries see all the trade slips and the rates on the Telerate screen, and the investments that are going to the Finance Committee of the Board. So everybody knows exactly where interest rates are, and if we say the market is 9%, the investment people agree, and the actuaries agree, and we know it is all 9%. Then the marketing people come in and say "Gee, everybody else is 9.5%," so we end up pricing at 9.5% anyway. So no matter what we do, we end up pricing 50 points over where we ought to, but we keep working at it.

I think that it is important to measure the performance of the investment people. And I think that there are two steps that we should be taking as an industry to try to move that performance measurement ahead. The first step is to reduce the total reliance on duration as a measure of investment activity or a measure of our investment goal, and move instead towards a measurement of total rate of return, by which I mean the current income plus the realized or unrealized capital gains. I think that duration has been a siren song for the actuaries because it can be mathematically calculated to at least two decimal places, and so actuaries feel very comfortable working with it. I think the investment people have not fought that too much because the actuaries say, "We need a three year duration," and the investment person comes back and says "Well, I bought the three year duration, there's the rate, and I did just what I was told, so you cannot complain about the performance." But I have a couple of problems with the use of duration and I think the first one is obvious -- that it really is not as exact a measurement as it looks to be. If you are talking about a zero coupon bond, or even a bond with coupons and no call protection, then maybe it is a fairly exact number within a small range of interest rates, but if you start talking about mortgage backed securities and callable bonds, it begins to become much more of an approximation. And to those of you who have worked with it at all, you also know that you cannot look at duration without looking at convexity. If you do not, you are going to get yourself into some trouble. And I think those concerns are less of a problem today; I think people do understand what duration is, but also what it is not, and they understand that you have to look at convexity. So I am a little less concerned about that. I am concerned about the ability that some people have to measure the duration and convexity of all of their assets, some of the assets like leveraged buy outs with equity participation, or common stocks, or real estate, where maybe there is not even a duration number and I am concerned that people are leaving themselves out of investments like that. Those concerns that I have just mentioned apply to the asset side. To get to the liability side, you can measure the liability of a GIC, but then even if it's a windowed GIC, then that's not going to work exactly right and with single premium deferred annuities (SPDAs), you can end up with withdrawals for unusual reasons: the client needs cash, or the broker needs a commission, and so they are not always going to respond solely to interest rates. Then you get to something like ordinary life, and I do not know what the duration is of a life policy. I did have one investment banker tell me that you could calculate it, and I talked to someone at one insurance company who said he had calculated it and had come up with a number of 5.5 years duration for the company's ordinary life policy. You are welcome to use that if you think there is any real significance to it, but I think that trying to measure the duration of some of our participating products has really a marginal benefit at best.

Moving to total rate of return gives us several benefits. The first is that the interest rate risk involved in the products that we are offering probably swamps all of the other risks that you have. We are currently learning in our mortgage portfolio that default risk is a consideration as well. But really the interest rate is the major risk in most of the products we are selling. At the same time, you can take a very sharp pencil to mortality charges and other expense charges, and you find that those are all dwarfed by just a few basis points on the investment return. So getting a high return on the investment for a reasonable level of risk is a tremendously important goal for all of us. And limiting ourselves to just the current income goal, that is what you end up with if you focus on duration, I think takes away the potential for some creativity on the investment side, and limits your total return.

I talked earlier about the difficulty of measuring duration or convexity. Measuring total return for assets is also difficult, and I do not want to downplay that. You have to come up, especially companies like ours which buy private placements and commercial mortgages, with a way to determine a market value for those and a way of including the options that are included in them.

Then you have to come up with a way to market value the liabilities. That is not any easier than measuring the duration of them, but I still think it is a very worthwhile goal. The other benefit is that it broadens your investment choices. If you are looking just at duration, you are going to end up buying just fixed rate assets. However, if you are looking at total return, you are in a position where you can sometimes look at equities, whether they be common stocks or real estate or issues with equity participations, a little more easily than you can if you are concentrating solely on duration.

I must tell you that back in the old days when people were not measuring our performance, it was a much more squirely existence that we lived in the investment area. People were concerned with what was the current income on the new investments that we were purchasing and with gathering information on some of our competitors as to what they were doing on new commitments. If we came out at the top, we knew that we were doing a good job, and if we came out at the bottom, then we knew that they were all buying junk. So it was a much easier business to live in, and performance measurements were really not a tremendous challenge. I do not really look forward to this new life of people measuring my performance, but with a total return approach you really can begin to break down the performance measurements and look at whether the performance comes from selection of specific assets, or does it come from a duration mismatch, or does it come from the asset mix between fixed income and equities. You can determine if the portfolio strategy department, which put you into private placements, should get compensated this year, or is it the private placement department, which bought some very good investments in spite of the fact that it was not a particularly good year for private placements? So you can begin to pinpoint performance and pay people for performance, and once you do that you are going to end up with better performance overall.

Somebody once made the comment that it could be dangerous to leap a chasm in two jumps, and in leaping the chasm to total return, there is one jump that you have to be careful of in the middle, and that is statutory accounting, which is not geared to measuring total return. Industries that we are competing with, such as mutual funds, banks, and money managers, are looking at total rate of return, but our accounting does not allow us to. We are going to have to consider what we do with statutory accounting. We can ignore it, go ahead with total rate of return management and show lousy statutory income, or we can just conclude that there is nothing we can do and continue with our emphasis on current return. In the long run, I believe this is going to work to our detriment. Alternatively, we can begin to take some steps to change statutory accounting while we are in control, do it now and do it thoughtfully and deliberately. I am concerned that there will be a point in the future where there will be some crisis, and some regulators will decide to change our accounting system for us. I think we will all be sorry with what we end up with.

Let me just take a moment to talk about what The New England has done in the area of total rate of return. First of all, as Rob mentioned, we do have a portfolio strategy department which is responsible for managing the assets which back the insurance and pension products. We have eight people working in the department, four of whom are actuaries, and we are responsible for managing the assets. But we also get involved in product design and pricing, working with the product actuaries on developing investment strategy. We have several liability and asset segments within the general accounts. The liability segments buy various pieces of assets. They will buy some private placements, some mortgages and some sections of the index fund if it makes sense to their liability. The person who is managing that particular fund is measured solely based on the total rate of return, and he is compared to outside managers of mutual funds and investment counsellors. So for those segments within the general account, we are looking solely for the total rate of return.

When we look at the liability segments, we also calculate the market value of our assets, and measure the total return on a regular basis. But we really are not yet at the point where we are able to market value all of the liabilities and calculate the total return on the liabilities. We do that for the GICs and we do it a little bit for the SPDAs, but not at all for the participating life or the participating pension contracts. But we have gone halfway towards measuring and compensating people on total rate of return by developing what we call "The Adjusted Yield." What we do is take the old commissioner's yield that used to come out of the annual statement, and which you can still calculate if you've got the various lines in the annual statement. Then we subtract the impact of policy loans since that really does not impact on our policyholders' results or our performance. Then we add back in a rolling five year average of capital gains and losses, so that we are looking at a combination of current income and realized gains and losses. This does not pick up the unrealized gains and losses because we cannot do that for our competitors. As I say, we do internally calculate that total return, but we cannot get that for our competitors. That adjusted yield is then the major component in our investment department's incentive compensation program. So we are trying to move in the direction of measuring total rate of return. It certainly is a major goal of the investment department and is something that our product actuaries feel very comfortable with, although I have to say, it varies by product. For example, the participating line actuaries feel more comfortable with it than do the GIC actuaries.

I think that what has happened over the last ten years is that the actuaries and the investment people have come much closer together and it has turned out to be a much easier and better working relationship than we first thought. The fellow who is our Executive Vice-President of Finance, when he first brought an actuary into the investment department, called it his experiment in genetic engineering. We were not sure if it was ever going to work, but in fact, it has worked very well, and we are very pleased with the way it has gone at The New England. We now feel that we have tamed the frontier, but it is not yet civilized, and we have to continue to make steps to civilize what we are doing. We think moving to total rate of return measurement of both our assets and liabilities is going to be a major step in that direction.

MR. STAPLEFORD: Vic Moses is Vice-President and Chief Actuary with The Great Northern Insured Annuity Corporation (GNA), a mid-sized Seattle based company which writes primarily deferred annuity products. Vic has overall responsibility for all actuarial functions, including product development and financial reporting. He has been at Great Northern for six years and prior to that, he spent 12 years at Safeco Life. Vic is going to talk about the communications issue from the perspective of the corporate actuary.

MR. VICTOR C. MOSES: After listening to the first two presentations, I was a little bit relieved from my perspective that I didn't have to worry about $23 billion of assets or about all the various product lines. We are essentially a mono-line company. We write single premium deferred annuities. We have about $2.5 billion of assets under management, and a staff based in Seattle of about 200 people, including eight actuaries, and an investment staff of about 12 people. Three or four of those out of the 12 actually work in our bond trading department, and the others do our commercial mortgage program. So we do not have to deal with a lot of the problems that large companies do in terms of asset allocation between lines of business. We do not even have a logged historical track record of old blocks of business that have to be tracked. As a result, we have been able, I think, to focus a little bit more on the business we do and to give it a little more attention. What I would like to do for a minute now is to go through some of the things that I am going to touch on and some of the things that I am not, so that when I get done, at least, if you are disappointed, you will not be surprised.

One of the things in the program I mentioned was taxes -- I am not going to spend any time on taxes. I was hoping somebody else would, because I thought maybe I would learn something. For us, tax strategy is generally coming up with some reasons why Congress should not take away the few tax advantages that are left on our product, and it is something we work on with our government relations people not with our investment people.

I am not going to spend a lot of time on the importance of communications between the actuarial group and the investment group. I hope that is obvious, and I hope that is why you are here. They are important because they have a significant impact on cash flow monitoring, product development, pricing and valuation. If we understand those issues, hopefully, the rest is apparent. But as some of our previous speakers have noted, the increasing need for communication has really arisen from some fundamental changes in the investment environment, and those changes really started happening about ten years ago. I can spend a little time talking about the volatility of interest rates, but you have probably all been through that, and I am not going to do it. A second thing that has not really been mentioned is the tremendous array of products on the asset side that is available today that was not available ten years ago, and you can go through the list from futures to options on futures, CMOs (collateralized mortgage obligations), mortgage pass throughs, interest only pieces (IOs), and principal only pieces (POs). The list is long and the key there I think, in both instances, is that list is constantly expanding. I do not have the insights of an Alvin Tofler, who wrote the book *Future Shock*. The key point is that the rate of change of what is going on in our profession continues to increase. And it is that increasing rate of change that forces communication. I was encouraged to note that David Carpenter in the General Session made the comment that you have to keep saying the same thing over and over again. Myself, I kind of have to keep being told the same thing over and over again. Ideally, communication would not need to take place unless something had changed. And it is the rate of change that forces communication, and that is really the issue. As things keep changing, we have to communicate, and we have to communicate more. As long as everything was going fine, nobody really bothered to talk to the other group, and it was not until policy loans went through the ceiling and cash flow went through the floor that people decided maybe there was some reason to talk to each other. I guess many of you may have attended the session, "The Integration of Investment Features into Actuarial Analysis" which dealt with actuarial analysis, and using investment features in the actuarial analysis. One of the things I wanted to point out is that it does not always necessarily always have to be that way. The communications can work two ways. You can take some of the things we are doing on the actuarial side and move them over to the investment side. One of the specific examples that I wanted to use was one out of GNA's history. When the company was first formed in 1980, and began doing business in 1981, the idea was to sell single premium deferred annuities through financial institutions. And one of the ideas behind that as a kicker was to invest in commercial mortgages. By investing in commercial mortgages, that meant buying them from the savings and loans the company was writing annuities through. That sounded well and good. It was a nice way to entice savings and loans on the marketing side, but we are talking about 10 and 20 year fixed rate mortgages, not exactly an appropriate investment for a single premium deferred annuity product. About the same time I was hired, we also hired an experienced individual to run our mortgage department. In sitting down and taking a look at that program, we decided it was not working and it was not giving us the kind of assets we wanted, so we set about developing a mortgage program that would do what we wanted. What we came up with was a program that has turned out to be salable and a good match for our SPDA products. What we do now is offer borrowers a one to five year fixed period of interest rates on a commercial mortgage, and after that, there is another five year period where the rate floats, a ten year mortgage. What we get out of that is a fixed investment up front that we can live with where we have surrender penalties on the SPDA product, and at the point when we do not have surrender penalties, we have a floating rate asset to back a floating rate liability. We ended up with a program that now has probably $650 million dollars in commercial mortgages, and is providing a very good backup for the actuarial liability that we have. And it was not a change we made on the actuarial side in this case, it was a change we were able to make on the investment side. And so, it can go both ways.

I would like to spend a few moments talking about barriers to communication, and I will just reinforce what was said before, that good communication requires a common language, and I do not think there is any way that we can expect the investment people to try and deal with actuarial jargon. It makes a lot more sense for the actuarial people to learn and deal with the investment jargon. There is simply a lot bigger investment world out there than an actuarial world, and we are a pretty small minority to expect them to come around and learn our ways of talking about things.

I think the other thing that we do in the actuarial area that might be of interest is on the cash flow side. And it gets back to having kind of a common focus between what we do on the asset side and what we do on the investment side. As the company got started, we actually sat down between the asset side of the house and the actuarial side of the house and decided what we wanted to do to run the business. We made some early decisions that the company was going to be a duration matching company and that was a decision that was made jointly. It was taken to top management, "This is how we are going to run the business." As a result, both sides of the house ended up with a common set of goals. And one of the things the actuarial group does today is when we run our quarterly valuations, we run a GAAP valuation, a statutory valuation, and in addition, we run an option based stochastic valuation that market values the entire asset portfolio of the company with some minor exceptions like real estate owned that are very difficult, and we value the entire liability side of the business. And a lot of the concepts used you might have heard talked about in one of the earlier sessions about option based or option pricing methods, applied to insurance products. But the key is that out of that we get a couple of things. One, we get a market value of both the assets and liabilities that can be used to measure total return if you want to run a portfolio on a total return basis. Number two, by shocking the interest rate curves, we come up with duration numbers, and we come up with some duration targets for our asset people, and the whole thing has worked out really remarkably well. And we do not try to target duration to two decimal places. I realize how difficult that can be, especially when you realize the variation in the assumptions that are going into both set of calculations. But we try to stay within a half year or so, and so far our results have managed to track very well. We had some problems originally. As we started out doing this, one of the things we were doing on our short term projection side was where we had all these fancy interest based assumptions on the liability portfolios, we realized that on the asset based portfolios we were using some very simple calculations. Simply what was the book yield on the portfolio, and how was that going to generate income? We are now picking up on our short term projections, the entire asset portfolio of the company, and applying the same kind of interest based assumptions that we apply to the liabilities to the assets, and finding out that we are doing a heck of a lot better job just on short term projections projecting the income of the company.

But I think really the second barrier that we have to deal with is the barrier of turf, and I guess it is a natural protectiveness we have about our professional areas. The idea is that knowledge is power, and if we share that knowledge, somehow we are going to give up some of that power or some of that authority. And that to me is probably the most difficult barrier to overcome. I do not have any real good suggestions other than to say that the primary way to do it is to make the incentives for the two groups to intertwine, and we take an approach simply of not trying to separate out investment performance from liability performance. The two groups are both responsible for the product as a whole. And their performance is measured in total. If one group fails, they both fail, if one succeeds, they both succeed. And that, so far, has worked well for us. One of the other things I would like to point out, especially if you see some of the work that is being done in some of the investment banking houses, is that some of the best work on both the asset and liability sides of the houses today is being done by teams that have been cross-fertilized both with actuaries and with investment people.

So finally, what can you do to foster communications between actuarial and investment groups? I think there are a couple of things. One, is there an actuary on your investment committee, or one of your committees? If there is not there should be; and it works the other way around. If there are not investment people on your product development committees, there should be. If you have a centralized actuarial function like we do, then why not locate it next to the investment department, why not put those two people in a situation where conversation and communication can be casual as well as formal? Finally, I think the other thing that makes a tremendous amount of difference is a common focus, and common reporting relationships can do that. I do not know how many companies use a chief financial officer structure, but having a chief actuarial officer and chief investment officer both reporting to a chief financial officer can add some real advantages in terms of common goal setting and common orientations.

MR. SENN: I am up here now to introduce Rob Stapleford. Rob is going to be replacing Ken Stewart today, who unfortunately, is unable to be here. Rob joined the Mutual Life of Canada in 1974. He is currently Vice-President of Investment Services and is responsible for the investment actuarial area which prices new money products, addresses interest rate risk, and is responsible for general communication with the liability operation of the company. His area also includes investment administration and planning and investment marketing support for pooled segregated fund pension plans. Rob is also a course content officer for course 220, the core investment course in the Society's syllabus. Rob is going to be giving a modified version of Ken Stewart's presentation. He has done this so that he can claim credit for all the brilliant insights and blame Ken for all the dull parts.

MR. STAPLEFORD: What I am going to try and do is build on the earlier comments as to why the communication process is so important, look at several areas where communications are important, and then conclude by looking at some of the barriers to effective communication and how we have addressed them.

What is the rationale for strong communications process? Some of this may be very obvious, but at the same time we found it difficult to put into place. The first point is that much of the information tied to the communication process is essential today. We cannot operate without it. Consider the pricing of new money products. We all know how volatile interest rates are. We have to also realize how thin margins are these days. Valuation actuaries need to be aware of margins and yields required for valuation. Our company is investing in different types of investment with much greater risk than we had before. The issue of what is an appropriate margin has become all the more important for us. Within the investment division, we need to know how many dollars there are to invest and what types of products we are supporting. Daily cash management must ensure that the money is getting put to work as quickly as possible. And of course, there is the issue of asset/liability matching. If you do not have an effective communications process in place, how can you even begin to look at what your risks are? Much has been said and written about how important this risk is.

Second, is the impact on sales and profit. Jim referred to many of the annuity products as commodities. I would agree with that. They are very price sensitive. On the other hand, profit margins are very thin. It is a continual balancing act to ensure that we are realizing the investments that we expect to support the annuity products, and at the same time realizing the appropriate spread. A regular review of this has been forced upon us because of the complexity of the products, the new types of investments we have had to seek out to support the liabilities, and volatile interest rates.

Last is the link to the corporate area. The issue of capital utilization has become all the more important for life companies. Dave Carpenter referred to the issue of shortage of capital. Financial forecasting has become all the more important, and involves the investment area to a much greater degree in the formal planning process. We also face capital allocation questions. Which lines of business are growing more rapidly than the capital that is being allocated to them? Much of that ties into the types of assets that are being put on the books. This takes you to the area of risk adjusted capital which is used by regulators and your own planning department to determine the amount of capital to fund future growth or acquisition strategy. This is very much dependent upon the types of assets, the degree of matching, pricing risk, etc. and therefore demands that there be a very open and clear line of communication.

Now what are some of the key areas to this communication process that are reflected in areas such as strategic planning, investment policy, product liaison, portfolio management, asset allocation, strategic management? I will lump the two strategic comments into one.

Let us start with strategic planning. What is your company's focus? Is it market driven, is it earnings based, is it opportunity oriented? It may be driven by the marketing side, or the liability side, or it maybe driven by the investment side. Companies will have different focuses, but in today's environment, unless both the asset and liability sides of the balance sheet are working together, success is not guaranteed. Each side needs to work consistently, albeit perhaps somewhat independently, towards their specific roles, but there must be top down commitment towards coordination of strategy.

The next area is the setting of investment policy, and I am going to break the communications process in terms of moving from long term to the very short term.

The first strategic issue is one of capacity planning. Within the investment division, much of the assets that we seek out to support annuity products are mortgages, corporate loans or private placements. Some companies have even gone into the consumer lending area. Traditionally within the life insurance industry, the distribution of assets has not been viewed with the same importance as sales force development. However, it must be recognized that it takes time, patience, and a fair amount of money to develop appropriate asset distribution networks. Long term liability plans need to be integrated carefully with investment plans to ensure you have appropriate harmony between the ability to distribute assets, and the ability to distribute liabilities. This may tie into the need for a merger and acquisition to acquire those asset placement skills, or a long term goal to develop them yourselves.

Another strategic area is the question of risk tolerance, and in particular, dealing with the interest rate risk. There needs to be a very solid and consistent understanding between the investment and product areas as to what an appropriate degree of risk will be. In this day and age of extreme volatility, when both sides of the house can contribute to a mismatched situation, and when both sides of the house can contribute to correcting it, a clear understanding of who is responsible and what steps will be taken to manage interest rate risk is exceedingly important.

I will now look at tactical planning -- the annual business plan. Investment operations at many life companies are organized into groups that manage specific pools of assets, i.e., bonds, mortgages, stocks, etc. Each year these groups will be allocated a certain amount of funds to invest. This allocation will already affect concerns such as matching, product design, liquidity, an outlook for market tax, etc. Much of the product information in the communication process has already taken place to enable these people to operate effectively within their specialized market. However, the communication process must take place. You also need to recognize that planning has to be a flexible process and both sides have to be communicating on a regular basis to deal with the changes that are very likely going to occur.

Vic said that he would not talk about taxes, so I will do that for you, Vic, because in our company, we also have a great deal of difficulty with taxes. That is another major line of communication from the corporate area to the investment area, and deals with whether tax effective investments should form a part of our investment strategy. Assets such as preferred shares, leases, real estate, municipal bonds, all provide a lower pre-tax rate of return, but a higher after tax return than other traditional forms of fixed income investment. This requires a forecast as to what the tax position will be and whether those tax benefits will indeed be realized. So, again, it is another example how this triangle of communication needs to work effectively.

Usually the conditions and assumptions envisioned in the business plan do not last all that long, so on a quarterly basis we review formally what has happened. This ties into the preparation of our quarterly financial statements. I think we are doing the same as what some other panelists have said in terms of quarterly cash flow forecast. We do not determine market values, but calculate discounted cash flows using current rates of interest to look at whether our asset placements have kept pace with our liability cash flow. Also, we use this as an opportunity to formally review what pricing expectations are being placed upon the investment area. This will also tie into review of areas such as yields achieved, commitment position, and also what margins are required for reserve setting. We will do a formal review of our asset/liability matching position each quarter, and this is coordinated by the corporate area. Input is provided from both the investment and product areas, and the corporate area does all of the calculations. The prime responsibility to manage interest rate risk rests with the investment division. This ties into the changing nature of our marketable bond operation which is the prime area whereby we actively manage the duration and convexity risk in our interest sensitive products.

Now I will move on to the monthly reporting which gets into the tracking of commitments, liquidity position, analysis of the matching of spread products and just how we are doing relative to our pricing goals. This is what leads into the quarterly pricing reviews. You can actually carry the whole communications process down to weekly and daily or an "as needs be" basis, whereby rates to be used for pricing are communicated between the investment division and the product areas. It is one thing to communicate what rates are in the markable bond area, as that is a fairly continuous market place. The mortgage and the private placement markets are more discontinuous. The market may be active and therefore there are lots of deals to use for representative rates. There are other times when markets are slow, and it is much more difficult and more judgmental to determine what is to be used for rate setting. You see, in our company, the communications process covers a span all the way from strategic, down to daily, and it has to operate effectively to get utmost performance.

The next area would be that of product liaison. This is viewed as multi-lateral, or an all encompassing role involving both the product area along with our corporate area, and for those involving new money assets, will involve the investment division. The session mentioned on actuarial analysis discussed the embedded options that exist in assets and liabilities. These need to be recognized in pricing. Traditionally, actuaries have been very actively involved in the product design side of the house, but they need to understand what impact the options they grant to policyholders have upon cash flows and hence the impact upon the investment area. At the same time, with the emergence of many options, be it calls, prepayments, etc., the investment side is granting many options as well. These need to be recognized, or you can also have unintended risks emerge.

Repricing and dividends is not something that we spend as much time on as Ken did in his previous company. I think he is talking primarily here with respect to dividend scales and a long term investment strategy to support a participating block of insurance. It is difficult to determine the duration of insurance liabilities. We used to do it regularly to two decimal places, but have ceased doing so. The question of appropriate investment policy to support a dividend scale, and how responsive that dividend scale should be to changing interest rates and market conditions is an issue of ongoing dialogue. I think in some respects, the investment area has had it easy as the liability areas viewed investment activity as a given and not until recent years, took a great deal of interest in it. Now there is more questioning about policy.

The last couple of areas in terms of product liaison deal with opportunistic costing or large cases. I think this is an example where a sound communications policy and process can lead to competitive advantages. Here I am talking primarily about the large single premium case, or even a large investment opportunity, that you might not otherwise have wanted to take the entire deal. But it may be appropriate to do so by developing a special rate package to attract in annuity money to fund such an investment opportunity or conversely, you have a large single premium quote, whereby you have to check on the investment side as to what are the very best rates that can be given today. Given the volatility of the markets, and how thin margins are, we often operate on very short term guarantee periods, which can be measured in terms of hours. The communications process has to be finely tuned.

I will direct my comments on portfolio management at the timeliness of information. There is a great deal of information that must move between the investment side and liability side of the house, but it must be timely. Communication flows must be as responsive as the markets are of the products that are being supported. There is no point determining at the quarter end that you are exposed to a drop in interest rates, if you only get that information four weeks later, just after rates have dropped. I mentioned earlier that we perform this analysis on a quarterly basis, and have realized that to effectively manage the asset liability risk, that quarterly is no longer good enough. We are going to be moving to monthly, with an expected lag of less than a week in terms of getting cash flows, durations and convexities calculated. It's no small step, and I'll talk about this in a moment dealing with the barriers, in getting the investment systems to communicate with the liability systems. Often the information that investment managers had was geared to their specific needs, which weren't necessarily tied into the production of cash flows for all these other purposes. And it is the same thing on the product side. A large number of marketing reports and sales results are not necessarily particularly useful in the asset/liability matching questions. So that timeliness and the needs for systems to communicate are important considerations in the communication process.

The next area of communications deals with asset allocations. Here we are talking about it from the perspective of companies which have embarked upon portfolio segmentation. Ken's previous company had something like nine or ten segments. A major activity through the course of the year is the allocation of investments to the various segments. As this allocation process needs to be consistent with pricing, it also needs to be consistent with risk tolerance positions, and it needs to be equitable to ensure that all business endeavors have a fair opportunity to succeed. In our company, this process has been viewed as something in the domain of the investment area. Recently, there has been discussion coming from the product manager saying, "Why are you allocating those mortgages to the insurance segment when they could have gone to the annuity segment to give us better rates?" The communications process needs to work very effectively with respect to the question of the allocation of assets to the various segments.

What are the barriers that we faced in our company in terms of putting into place an effective communications process? We take some pride in that we have a good communications process, but we have definitely run into many barriers, the first being simply the time and effort required. Establishing communications between areas that have different time horizons and are responsive to different business pressures is no small step. It grows certainly with the complexity of the product side on both sides. However, as all the panelists have touched upon, it is a necessary step.

Secondly, the identification of what is critical information and how you get that information to people in the other part of the business in a timely manner. We have worked hard to cut down those delays, but it has proven to be a difficult and challenging process to ensure that information is available on a regular basis to deal with some of the market conditions that we see today.

The third barrier, we have seen is the changing responsibility for pricing. At least in the new money area, it is no longer the sole domain of the liability manager. Therefore, there has been a realization that it has to be much more of a harmonious process. In some respects, I think it is even more difficult for the corporate actuaries to get involved, now that you have two parties, investment and product, directly involved in pricing. This has made communications a little bit more difficult.

There are a couple of specific areas within the investment side as to why this communications process may be difficult to implement. Asset managers are often highly specialized individuals who focus on investment markets that are changing, that are very complex, and that demand a great deal of attention and understanding of a great deal of information. Focusing in on some of the corporate considerations (e.g., the product design, product cash flow, etc.), is taking them away from their marketplace. It has been almost a bit of an issue of information overload "Don't tell us about all that stuff, just tell us what it means and let us do our jobs."

The last point relates to the nature of many investment managers. Some of the liability or corporate inputs such as risk tolerance positions, may be seen as constraints. They are concerned that much of the communications and risk tolerance will end up constraining their ability to bring value added to the company.

How have we dealt with these concerns to have what we think is a reasonable communications process? First of all, we recognized a long time ago, that actuaries had a role to play in the investment division. Actuaries at Mutual Life have been involved in the investment operations for many years. This recognizes our culture, and our style of operation, which any communication process must do, but it also recognized the need for a strong communications link. It also recognized that actuaries, in days before volatile markets and interest sensitive products, had skills that could be useful in the investment discipline as well. So we have had actuaries working in our investment area for quite some time. It has not gone equally the other way. Few investment people have moved out into the product areas. That may be a step that will come down the road.

Secondly we, like Jim, formed various committees between investment actuaries and product actuaries that meet on a regular basis. There is a formal pricing review that goes on quarterly. As well, we also have just regular meetings between asset managers and investment actuaries. We also, several years ago, embarked upon a more formal planning process which forces both the product areas and the investment area to articulate their business plans. This provided everyone in the corporation the clear opportunity to ensure that there is consistency in both strategies.

We embarked upon segmentation of the asset portfolio back in the early 1980s, and in a couple of our portfolios, we have gone the route of having a segment manager. This can facilitate improved discussions with the product manager in terms of appropriate investment strategy, trading strategies, pricing, etc. I think this has improved communications, although I must admit that the portfolios are smaller and more self contained, but it certainly has helped in the communication process.

The last point is the question of education. I think, more actuaries are getting training in the investment side. One in our company wrote the Chartered Financial Analyst examinations. There is a greater need for actuaries to become trained in investment matters. That is a process that is well under way.

So, in conclusion, as everyone has said today, sound communications are essential. A good communications process among the investment, product, and corporate areas, is not by itself sufficient to guarantee successful operations, but I bet you that poor communications are a very likely road to poor corporate performance.

That's the end of the formal presentations, and I guess I turn it over to you in the audience, if anyone has any questions.

Well I will just throw one out to the panelists, and that is the whole question of asset/liability management: Whose responsibility is it to articulate risk tolerance positions, and whose responsibility is it to bring them within line? I turn it to anyone of the panelists to comment on how it operates at their company.

MR. GUTHRIE: Well let me start it off. At our firm, the investment strategies department has the primary responsibility for developing the investment strategy and the investment risk parameters of the product. We really do it working very close with the actuaries, and there is a turf problem that develops, but I think we have handled it pretty well. And when it first started, a number of years ago, there was a question of whose responsibility is this and whose is that, and we had some discussions about it, but I do not think it is really an issue anymore. It really is seen as a joint effort, and while on the organization charts, somebody might have responsibility for it, as I say, it really is seen as a joint effort and both sides are working on it, and it has not been a serious issue in the last few years.

PANEL DISCUSSION

MR. MOSES: Since we are a mono-line company, one of the things we have worked on with regard to risk tolerance, is what does risk tolerance really translate into? Risk translates into the need to hold additional capital to back the products. And in doing the asset/liability management, both on the investment side and on the liability side, we have convinced ourselves, that our risk reduction techniques bring that level of capital down to a level that is currently below the level that is required by the rating agencies to support the product. And so, all of a sudden, you are in a situation where your capital requirements are really not being determined necessarily by the true risks in your product, but they are being determined by outside forces, A.M. Best or other rating agencies. And that really posed for us the most difficult problem. We think right now that both on the asset side and liability side, we have a relatively small group of people working together, that we can get the capital requirements of the business down to levels lower than we are allowed to hold anyway.

MR. SENN: The process we use is a couple of the committees I mentioned. We have a committee that is called the asset/liability committee, which is made up of the general manager of our Canadian operations, our Chief Financial Officer of Canadian operations, and a Vice-President of the Canadian investment area who meet to discuss the issues that come up with their recommendations of what the parameter should be and what the risk tolerance should be. And that is proposed to the senior committee I mentioned before who has the final say in approving or not approving that recommendation. The senior committee is made up of the company's Chief Actuary, our Executive Vice-President for Investments, our Executive Vice-President for Insurance Operations, and our CEO and President, who is in fact a former investment man himself. So that is the process we use.

MR. DOUGLAS M. HODES: To the extent that the gentlemen in the panel have seen real rather than paper progress in either the integration or working together of the investment department and the actuaries, I'd be very interested in where that began. Did it begin as a result of working together at the operating levels, or was it imposed by a strong CEO or even a Board of Directors who basically said "You will work together." I would like to know the process of getting this started in an effective manner.

MR. GUTHRIE: I would start by saying we did not initiate it in the investment area. It was not our idea. In our case, it started with the actuaries coming to us saying that, and this goes back to 1980-1981, the products that we were selling just were not compatible with some of the investment strategies we had, which included long forward commitment process and long maturities, while we were selling liabilities which we thought were shorter lived. And so it was the actuaries coming to us and asking us for some help. We started working with them, and then a fellow named Ralph Verney came in as the Executive Vice-President of Finance and Investments. He felt strongly that the two areas did have to come together, so he hired a couple of actuaries to come into the investment department. So that did not so much come from the Chief Executive Officer, as it did from the Executive Vice President. But really, the initial impetus was just the actuaries coming in and saying, "We need some help with this and can we start talking about it," and from that we evolved the portfolio manager function initially just as a part-time liaison position and then it grew into a full-time position, and then a full-time department. That is where it started at our company.

MR. MOSES: I guess I would second that to some extent. I think most of the impetus in the companies I have seen has come from the actuarial side. In our situation, that was strengthened by a strong Chief Financial Officer who came back and said, "We are going to add some common goals in running this business and you two groups of people are going to have to work together to develop them." And that kind of pressure from the top side really helps, because it brings people together and it forces them all of a sudden to realize that they are going to have to do the job.

MR. SENN: In our company, the experience was the same as John mentioned, it was the actuaries who started the process. We made some significant advances about ten years ago, and on into the early 1980s. Then I would say, the whole process sort of plateaued for quite a while. Recently, we have had some senior management changes, which have really brought the whole process into the limelight again. We now have an Executive Vice President in charge of insurance operations, who is a former head of our investment department in the U.K. Reporting to him, he has all of the general managers from the different operating divisions in the company. He, in fact, for a couple of years before his current job, ran our entire U.K. operation, including the investment and the insurance operations. We also have a new executive vice president in charge of investments who has come to us from the banking industry. These two individuals are both outside the North American operations of Manufacturers Life from either the investment side, or the liability side. They have both come in, one from outside the company, one from the U.K., and both sort of laid down the law and said, "The key to our future success is doing this communication process really effectively." So the whole process in our company with that change, has really become much more focused in the last little while.

MR. GUTHRIE: Let me go back and add one other thing to tell you about the initial steps, because it's kind of indicative of the way communication worked at that time. Back in 1979, when the Fed changed its approach of managing money supply and interest rates, interest rates shot up, and we started having some problems with our cash flow and policy loans. On the investment side, we were concerned about the implications of this for our investment strategy. So we formed a little task force to study this and develop some recommendations on investment strategy to follow in what we perceived was going to be, and I think correctly so, a much more volatile interest rate period. And after we had done it, we sent it to a couple of the actuaries, who came back and said, "Well this is very nice, but it just does not tie in at all to any of the liabilities that we are selling." I think that is what was happening back prior to 1980 -- the investment strategy bore no relationship to what was going on on the liability side or if it did, it was just coincidental that liabilities were long lived and we were buying long lived assets, and just coincidentally it worked. So, when they came to us and said, "This does not work with the products we are trying to sell," that got our attention, and that was the original impetus. Prior to that, we were off developing investment strategies with some vague ideas of what the products were, but no real knowledge.

MR. STAPLEFORD: I am going to talk about it from our company, because it is a little different perspective than what the other panelists have mentioned. As I said, our process goes back over 20 years, and I guess I describe it as a bit of top down, but one of the actuaries in a senior position was moved in full-time to head up the investment operation. Thereafter, other actuaries followed him into that division. Being the head of the division, I presume he had a strong hand in such moves. Since there was a strong interest in investments by this individual, he saw how actuaries could be employed effectively in the investment division. The strong mathematical background could be used in a variety of ways to support the strong market skills that existed to produce a better overall team. So rather than being a push from the product side, I would say that our process was a career move with a top down push.

MR. WILLIAM F. SUTTON III: I would just like to make the observation that some of the best relationships I have seen between actuaries and investment people are situations where the investment person is relatively new to the life insurance business and really does not understand that investment people and actuaries are not suppose to talk to each other.

MR. GUTHRIE: On the investment side, it also works better with new investment people, but I think that is partly because the people coming out of school today are, even if they're not actuaries, much more highly trained in mathematics, and are much more comfortable with computers and quantitative techniques. The older investment people who did it more by the Graham and Dodd valuation techniques, rather than computer technology, see anything quantitative as a threat and as something not totally understandable, and something, which if we go in that direction, that is going to be a problem for them because they do not understand it. So there has been resistance there, but less resistance among younger and more quantitatively oriented people. I mentioned Ralph Verney. Ralph's background is quantitative and operations research, and so he felt very comfortable with quantitative approaches to things, and I think that makes a difference too.

MR. RICHARD L. SUTTON: I have a question for Mr. Guthrie. You indicated we should move away from focusing on duration and instead look towards total rate of return. How do we focus on total rate of return and still consider the mismatch risk?

MR. GUTHRIE: First of all, you do not ignore duration in doing your pricing. In the last few years going into mortgages at a time when interest rate spreads on mortgages were very high, we were able to take advantage of the opportunity of investing in mortgages. But maybe some of your total return came because you thought interest rates were going up and so you shortened up duration, and that turned out to be the correct decision. And maybe you thought rates were going up and you shortened, and they went down, and that turned out to be a bad decision, and therefore, the investment department does not get any incentive compensation this year. But, you do not move away from duration, but total return gives you a way to measure where your performance came from, and if it came from the mismatch, and it was a deliberate mismatch, then that's great. If the total return on your assets was lower than the total return on your liabilities, because of a difference of duration mismatch, than you have a problem. So you are still looking at duration, but the investment people are not required to get a 4.32 duration on the investment. They are told, "Here is what our duration is on the liabilities," and then they have the flexibility to move around that, and if they guess it right they get compensated for it, and if they guess wrong then they do not get compensated. I think that is the direction that we are trying to move in.

MR. MOSES: Well I guess, the key for us in duration is that duration isn't really etched in stone and that we give our investment people some opportunity to move around that in order to get cash invested. But we try to stay plus or minus half a year, and that's a function of surplus and many other things. Given that you have to give them some discretion on what to do, you cannot hold them to a 4.3 year duration, and say, "You have to have that portfolio." At least we do not think you can. And so, we will run plus or minus half a year of the durations and say, "If they are within that range, that's fine," and give them the discretion to do what they want with them.

MR. STAPLEFORD: Our position is somewhat like that of Vic's, whereby we will use duration as a bench mark and a risk measure technique. In fact we also use plus or minus half a year, but we also try on these quarterly analyses to look at what would be the effect in terms of a change in a surplus position for plus or minus a hundred basis points, or two hundred basis points. And we make sure that we are prepared to accept the risks whereby if rates go one way you win, and if they go the other way you lose. So it is not simply duration tied, it is really a change in the surplus position.

MR. GUTHRIE: Let me add one other point. The other half of the question is what do you do with assets like real estate or common stock where you can't calculate the duration? Moving to total return allows you to use a wider range of assets, and certainly at our company, and I think throughout the industry, capital has been limited. Being able to move into assets which are going to provide higher returns such as stocks and real estate equities has got to be helpful in the long run not only to us but also to the clients.

MR. THOMAS M. MARRA: Just one more question. I think a few of you mentioned risk adjusted yields and what additional levels of risk mean in terms of capital requirements and in terms of desired profit margins. Certainly, I have seen some work to show how different levels of risk entail different levels of capital, and maybe it is the cost of that capital that determines the different level of pure profit margin that might be strived for. But is there any other work out there, or any other processes at work in your company, to fully take note of that additional risk element, or the variances in risk, in terms of the desired profit margins?

MR. SENN: I will make a comment on that. At our company, we do regular quarterly valuations of the surplus position of our notional fund. We value the assets and liability future cash flows at various different interest rates. And one of the things we actually do in that is make what we call a quality adjustment. It is a rather subjective measure, but we try to take account of the relative quality of the assets that are in there, and what the effects on surplus would be if we returned to our pricing standard quality. So, it is not as objective and scientific as one might like to do, but we do try to take account of that factor in our analysis.

MR. MOSES: Tom, you have hit on one of the points we have really struggled with. That is, "What should the return to stock holders be for a particular product given the risk characteristics of that product?" Looking at the capital that is required to support it, and factoring in the cost of that capital is one way. But even there, we are not quite sure we have the whole answer, and the question there again, if capital is required as a result of variability of return, and if you look at two things: what is the variability of the return and what is the expected return, you would like to think that the return to the stock holder ought to be based somehow on what the expected return is, or what the variability of that return is. And somehow, we look at that and say, if we have a very high risk product, the return to stock holder should be high. If we have a low risk product, the return to the stock holder should be low. But we have not necessarily been able to quantify those. We have done a little bit of work actually based on work done by Ibbotson and Sinquefield which is out of the University of Chicago, studying equity returns in the U.S. market over periods of time, and saying that equity returns over the last 60 years, have averaged on a real basis about 6.3% over short term Treasuries. That is the equity premium, and trying to use that as a bench mark, saying if you looked at our stock, and our stock had a beta of 1, then we ought to be somewhere around a 6.3% real return, or at least a 6.3% return over treasuries. And if somehow, we can bring the beta of our performance down below that, then we ought to be able to bring the return down below that somewhere. And long term corporates have a return of somewhere in the neighborhood of 1.5% or 2%, and we know we have to be above long term corporates. So somewhere between 2% and 6% is the answer but where that is in between there is subjective.

MR. GUTHRIE: We have also struggled with it. How did you get the product line actuaries to admit that there is any risk to their particular product line? Nobody wants to have to carry that surplus, and the par actuaries will say, "You know with that par feature, there is no risk at all, so I do not need any capital." Even with the GIC line, they will say, "We are so perfectly matched there is no risk. And so we do not need any capital." But it is something we have tried to struggle with and I know Lincoln National has done a lot of work on required surplus for different lines, but also for different asset categories. Moody's has adopted that Lincoln National approach, or at least the general approach, if not the specifics. We have utilized a similar approach that we had developed and tried to look at, for example, how much risk is there in common stock, or real estate, or fixed income assets, and so forth, and allocate some surplus based on that, and then look to the liability side and allocate surplus. But it is still in a very primitive stage -- it is something we are still struggling with.

MR. STAPLEFORD: Well to make it unanimous, we are having trouble with it, too. The concept of risk adjusted surplus is in some trouble in Canada. The industry association has worked on a risk formula. The federal superintendent has looked at it, and given our own internal accounting basis, we have developed another one. Therefore, trying to come to grips with what are appropriate factors, which are in themselves very judgmental, has been a challenge. And that process has been made difficult in some respects by the good economic times that we have had. You try and talk about what is an appropriate asset/default margin to meet a C-1 risk. Then someone asks, "What experience have we had in the last five years?" Our experience has tended to be very good, and much less than what you would likely need through a full economic cycle with a meaningful downturn. And so, our problem with moving to any other type of measure has really been trying to develop a stable determination of what is an appropriate amount of surplus and then how you measure financial performance.