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Ten Years Later: The Investment Asset/Liability Management Actuary

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Summary: A decade has now passed since actuaries started getting more directly involved in the asset side of the balance sheet. This session examines the progress that has been made in this area, as well as the shortcomings.

Mr. Steven P. Miller: The idea behind this forum is that—although we missed it in October 1997—the annual meeting for 1987 was the initial meeting of the investment section of the SOA. It took place on October 20, 1987, which is famous for being the day after October 19, 1987, the largest point change in the Dow ever.

From the Floor: Second largest.

Mr. Miller: Second largest, OK. We beat it last October. Or did we beat it today? I hear that we lost 207 points. All of this is just a little background on the ten years that we're talking about.

The idea behind the creation of the investment section, and then later on the creation of investment track and the finance track in the SOA's educational system, was to create a new hybrid professional, the investment actuary, who was an expert in both investment and actuarial matters. Since that meeting, the total return on the Standard and Poor's (S&P) 500 has averaged 19.2% per year. If you invested \$229.61 on that day, which was the total return index for the S&P 500, by the end

of last month, not counting today, you would have \$1,469. In the meantime, the consumer price index went from 114.8 to 162.4, which was an increase of only 3.4% a year, resulting in the incredible annual real rate of return on U.S. stocks in the last ten years of 16%. If you had called your broker instead of going to the investment section breakfast, you would be rich by now.

Literally on the downside, the Japanese TOPIX index was 1867.18 on the day that we met first, and now, as of Friday, it was 1177.25, which is a 37% drop. There was almost an incredible liquidity crisis in the New York Stock Exchange (NYSE) on October 19 and 20, 1987 because there was a volume of 600 million shares and we didn't have any way of dealing with that size of volume, which brought the average for October 1987 to 277 million shares traded in October on an average day. In May 1998, the average NYSE volume was 569 million shares, and for several days the exchange handled greater than the 600 million shares that almost broke the system.

The swap market in 1987 had a total notional amount of \$865 billion. The swap market in 1998 has had a total notional amount of \$28.7 trillion. The five-year Treasury was 9.08% in 1987. They tell me now that's an impossible number. It was 5.63% in May. I think it was 5.50% or below last time I looked. I don't have any numbers for 1997. The latest I was able to get was for 1994, but annuity considerations went from \$88-\$154 billion in the life insurance industry in those 7 years.

Also, in 1987 Mr. Thoraclius may have known what the Internet was because he was in the university system, but almost no one else did. In 1988, I got to view the neatest computer I had ever seen in my life, a 16 megahertz 386, which is what I'm still using at work—if only I could get a 400 megahertz Pentium II. In 1987, the only place you found derivatives was on Exam number 1. Now we don't even have an exam number 1, but we have derivatives on Exam numbers 100, 210, 220, 385, 580, 585, 480, and 595. The last ten years have created products: the equity-indexed annuity (EIA), the insurance-linked securities, enhanced death benefits on variable annuities, and all sorts of other different kinds of headaches that were not even possible in 1987.

Rob Rachlow is the senior vice president and director of performance analysis for Lincoln Investment Management, where he provides analysis to support the investment process for Lincoln National Corporation. He uses a number of in-house and commercial software packages to analyze performance against benchmarks, T-rate durations, security pricing, and other things. He also has experience doing actuarial asset modeling before he moved to Lincoln Investment.

Eric Thorlacius is vice president at Falcon Asset Management, which, as of last Thursday, is a subsidiary of Swiss Re. He's a past winner of the Homestead Prize with Hal Pedersen and Elias Shiu for a paper on interest rate modeling. He's an FSA and a Chartered Financial Analyst (CFA). He's worked with asset/liability management (ALM) in the U.S. and Canada, and in the pension, life insurance, and property and casualty (P&C) insurance areas.

Frank Sabatini is a partner at Ernst & Young in New York. He's an FSA and a member of the AAA. He's been working as a consultant for 22 years and has worked with ALM, option-adjusted duration (OAD) convexity, the product development of interest-related products, mergers and acquisitions (M&A), and performance measures and attribution. He also has a quote here on his e-mail that he sent me, which I would like to challenge sometime, but would like to see if anybody else agrees with this. He says: "In many respects, not much has changed." I would be interested to know what Frank has to say about the basics that haven't changed even though we go through all these lists of things that have seemingly changed.

I'm going to ask the first question and from then on it's up to you. Have actuaries provided services in investment areas that are unavailable from other professions? Is there a good reason for putting all this knowledge into one person when maybe a committee might do?

Mr. A. Eric Thorlacius: I'll take a shot at that question. Since I am qualified as a CFA as well as an actuary, I would say that a lot of the same kinds of issues apply to training for the CFA designation. I wouldn't say it is the exclusive domain of the actuarial community. However, I don't think that there's anybody else who more fully understands the liability side, and that is the fundamental issue to be able to practice in this area.

Mr. Robert E. Rachlow: I would agree with Eric. I, having not taken the CFAs yet, but having seen them, would think that they do cover a lot of the same things on a much less intense basis than some of the investment exams. But, working in an investment shop, you tend to be a second-class citizen to some of the CFAs. You have to prove yourself more, and that's OK. After you do so, they seem to accept your knowledge and your expertise. But I would agree with Eric.

Understanding liabilities helps so much when you're talking to the liability actuaries and understanding what they're talking about when they're discussing liability duration, or when the portfolio managers and asset managers talk about the difference between an asset duration and a liability duration and how you reconcile those two. I think that's the biggest advantage, just having that liability base and being able to

understand what they're talking about when they approach you and say, "We want this cash flow stream, match it."

Mr. Francis P. Sabatini: I have the advantage of listening to everybody else's response. Actually, I don't know if credentials really enter into it. I do agree with Eric and Bob. You should have an understanding for both sides of the balance sheet. Both the CFA and the actuary come up short when they don't take the time to understand the other side of the balance sheet. If you're a CFA and you're focused on the asset side, but you haven't taken the time to learn about the liability side, that's where you come up short. The worst thing in the world is to meet a CFA who thinks he or she understands the liabilities, but actually doesn't. Vice versa, take an actuary who thinks he or she understands the asset side but doesn't. I don't think a designation gets you there. It's an understanding of both sides of the balance sheet.

Mr. Miller: What do you think of some of the things that were listed in the article describing this session? Number one, exams. A lot of people, especially new ASAs, want to know whether or not it's worthwhile taking the hardest exams, but the most rewarding, I might add. They may want to know about job opportunities in the future. They may want to know as possible employers what value the investment actuary would have if they wanted to add a specific investment actuary to their staff.

The level of investment knowledge for actuarial exams has increased in the last ten years in the core study with the addition of the investment track. Do you feel that actuaries are well equipped now for their roles in investment decision making, or do you think that there's something missing in their education? For example, maybe that you need to be a CFA in order to be an actuary, which you've already answered? Or is there something missing, more stochastic calculus, lower pass ratios, anything like that?

Mr. Rachlow: Having now had the opportunity to be a vice chairperson for Exam 220 and having put together an exam introduction on the investment side, I would say that I wish I had been able to take the investment track. I finished before it was offered, and they are coming out with more great knowledge that is harder for me to pick up and learn from a textbook rather than having a scheduled exam structure. From that aspect, I think the investment track is a wonderful route for the students to take.

But as far as the knowledge, I would say that my experience has been mostly in asset modeling, and for that it's a big help being able to understand some of the curriculum, even back to Calculus 101. I was surprised that I had to actually use that once again. But to be able to understand such items as OAD, the cash-flow

structures, calls and puts, and options was very helpful just on the exam structure I did have.

Now I'm in a performance analysis area, and I would say there's no special training I've had versus someone coming through a finance school with a CFA. The advantage I may have over someone like that is the exam structure and the preparation and getting through the exams which gives you a healthy skepticism. Maybe that's not the right word, but a lot of experience and knowledge to apply toward real situations that don't require heavy-duty math. I get involved in so many other things at my company that don't require any actuarial work at all. But just having that problem-solving ability and being able to think logically through things is a big plus.

Mr. Thorlacius: My first thought would be that the exams really help you to get an understanding of what the language is and what the basic concepts and tools are. But picking up on something that Frank said, I think that the biggest thing you need is experience—working in different areas and just understanding the different mind sets that are there so that you can bring those things together. I think that's more critical than some of the actual experience.

The other thing I would say on that note is in respect to ALM-type analysis, which is a field that is still struggling to entirely define itself. I think that there are a lot of different approaches being used in different aspects, in the pension industry versus the insurance industry versus the reinsurance industry. They are very much the same, but they're different underlying types of approaches, and I think there is a body of knowledge that is still forming itself. One of the things that is really driving that process is the computer technology that is available.

When I began in 1987, there was a 386 on my desk and I've never been without one since. They just get more powerful. What has gone along with that is the types of modeling and the depth of analysis that you're able to do have increased. Fundamentally, what you're doing is really not any different from what I was doing then, and, from my knowledge of working with other practitioners, is not fundamentally different from what was being done 20 years ago. It's just more refined and more complete, dealing with a larger number of issues. I believe it's a field that is still finding its way as you move on. So I think the exams definitely give you a strong start, but I think working in the area is the thing that is most important.

Mr. Sabatini: I have to admit that I can't quote you chapter and verse in terms of all the different topics that are covered, but I stay reasonably close. I think the exam structure does a good job of laying the foundation; therefore, the real issue is then gaining that hands-on experience. As more and more companies bring actuaries into risk management functions, ALM functions, and the investment organizations,

the exam structure serves as a good starting point for those individuals, and gives the actuary an advantage because the CFAs don't learn about the liabilities yet. They may at some point. There may be an insurance speciality track that will bring in liabilities, but it's a fairly sound foundation. I would expect that the syllabus will continue to grow.

I think we're working in an area where the mathematics and the technology continue to advance, and you'll see it in some of the sessions here. I think the mathematics and technology are reaching out to other industries like banking and taking the best of what's in those industries and bringing it into ours. As long as the syllabus continues to keep pace with the evolution of what we do, and people have the opportunity to get the hands-on experience, I think it's an excellent platform.

Mr. Rachlow: I'll just add that we have a staff of five actuaries, two Fellows and three rotating students, who do asset modeling. Maybe it's attractive to actuaries because the tool we use is PTS, but still they seem to acknowledge that we understand that tool and are able to model the assets appropriately.

Ms. Donna R. Claire: The Society's Mission and Vision Statement includes an assertion that we should be recognized as the experts in the analysis of financial risk. Is that realistic? First off, since you gentlemen are on the asset side, do you think it's achievable? Should we change the mission? Or what can we do to reach the goal if you do think it's a reasonable goal?

Mr. Sabatini: Donna, could you please define financial risk?

Ms. Claire: However you'd like to define it, Frank.

Mr. Sabatini: I think we're certainly equipped if we choose to pursue that. I think if you want to stop and think about financial risks, refer to my talk at Session #58, Risky Business: Covering Your Assets. As you'll hear in this meeting, it's not just interest-rate risk. As I said earlier, we have a curriculum. We're starting to look at other risks, some of which may not be measurable yet, but might be at some future point. I see no reason why we couldn't achieve that goal. I think our lives, whether we're investment actuaries, product development actuaries, or financial reporting actuaries, are evolving away from the more traditional role to one that, in theory, could be much more dynamic. I don't see that assertion as unachievable at all.

Mr. Thoraclius: I'd like to pick up on that last word "dynamic." I don't see anyone else who is grabbing the analysis of financial risk as their particular field, and I would include Wall Street. I don't think anyone has said they're the recognized experts in that field. But the word "dynamic," I think, is the key, particularly on the life

actuarial side, as opposed to the P&C field where we're far too deterministic in our approaches. I think there's been a definite progression there, but you don't tend to see a lot of calculations that analyze the probability of something happening. You see a lot of pricing, and expected valuation types of thinking in the actuarial community, and I would think that shift toward more probabilistic types of analysis would be one of the real keys in grabbing that goal.

Mr. Rachlow: The only other thing I would add is, I wouldn't necessarily say that we have the corner on knowledge. I've run across some very, very bright people who weren't actuaries who could run circles around what I could understand. I would say that, as a rule, we tend to be well equipped to be able to understand those risks, but also that we haven't cornered the market.

Ms. Claire: One more question on the practical side. Steve, I know you were in the first investment section council. Do you know how many students and actuaries have gotten into more of an investment role in the last ten years? And the second question to the entire panel, if students want to get more into the investment role, what would you suggest?

Mr. Miller: The investment section is actually the second largest council section in the SOA, with more than 2,000 members. I don't really know the numbers for people who are taking the investment track. I know that a demand to separate the finance and the investment track was considered because there were plenty of people taking the exams.

Mr. Thoraclius: As a student these days, just look around you. There's a tremendous demand right now for people who are willing to work in that area. My impression from talking with people is virtually every insurance company has an actuarial program in the investment area. I think there's no shortage of opportunities these days.

Mr. Rachlow: We have two open actuarial rotating spots in our investment section, and that's something relatively new. It may broaden. I'm not sure. But I would say having taken, or having been currently involved, in the investment track certainly gives those students a leg up on someone who may just have gone through the regular track. Again, I would concur with Eric. We definitely look for those students who are interested in the investment side of it, and do have, at that level, some investment experience.

Mr. Larry M. Gorski: I've had the opportunity to participate in a couple of AAA working groups of task forces dealing with evaluation questions or risk-based capital (RBC) questions and, in particular, the valuation task force headed by Bob Wilcox.

That group started off with a very ambitious idea to consider reserves and surplus, let's say, on a probabilistic standpoint, and gradually migrated to a report that contained a lot of options with a clear emphasis on the more traditional ways of measuring risk. I'm wondering if the investment section has any comment on the AAA report on the Valuation Task Force, or if they had a chance to participate in any of the work of that group.

Mr. Sabatini: I don't know that I can speak for the investment section per se. I can offer my personal commentary though.

Mr. Gorski: Personal comments are fine. My feeling was that the composition of the Academy Valuation Task Force was probably too heavily weighted towards people with a more traditional view on things as opposed to more innovative and creative ways of evaluating risk. In all the sessions I attended, I never really saw participants from the investment section.

Mr. Sabatini: I think you're right. There was a heavy emphasis on valuation people in that task force dealing with subject matter that was heavily investment-oriented with investment-driven risk elements, so I'm not surprised where it ended up. You're almost suggesting that the investment mind-set eventually needs to move over to other aspects. It certainly does in product pricing today, and it certainly could move into valuation areas as well.

Mr. Gorski: I'm definitely making that suggestion. There were a few people from Wall Street firms who did participate in the work of the AAA task force. I don't think their views were listened to because they were coming from nonactuaries. But it probably would be helpful if actuaries who are investment specialists would participate in future task forces.

Mr. Robert A. Gabriel: Steve, you mentioned several changes in the indexes over the last ten years. Do we have any quantifiable measures of how we, as an industry, have done in matching our assets/liabilities (A/L) over the last ten years? Do our durations match any better? Do we have fewer Executive Life problems? Or have the last ten years just been wasted?

Mr. Miller: My opinion is that there are several possible anecdotes. The first is that the rating agencies spend a lot more time asking about your ALM, and that requires two things. It requires some disasters that may not have been ALM disasters, but that made rating agencies look for sources of risk. It also requires the actuarial profession to increase the amount of knowledge there is among nonactuaries about ALM problems. On the one hand, there are some anecdotal things that say, yes, we have done some positive things in terms of education.

On the other hand, I occasionally run into insurance companies, working on an analysis of financial statements that seem to exist, when I would think that a regulator would have said, "Please stop selling this business in this manner." Or maybe they have and they're working on it silently. Obviously, they shouldn't make press releases and kill a company when all they're trying to do is get them to change their behavior. I still think that it's possible for a person to send in a cash-flow testing actuarial memorandum that is just plain false, that doesn't include all the possible risks. There has to be some way that we can, as a profession, minimize that possibility of having an actuary sign something that doesn't have all the information that would make almost any professional ALM person say, "This is not going to work." What do the panelists have to say about that?

Mr. Sabatini: I think I'm the oldest member here. You know, as I look back 10 or 20 years, there are different levels at which an organization operates. Some are consciously competent, and some are consciously incompetent. Some are unconsciously competent, and some are unconsciously incompetent. When I first started dabbling in this back in the 1970s, just understanding some of the risk issues was a big breakthrough. Now it's, "Gee whiz, that's old hat."

I think we've come a long way. I think there are companies that are making decisions to develop products or not develop products because they have a better understanding of the risks. I think there are companies that are reconfiguring their portfolios, whether it's in terms of overall asset quality, duration, or convexity, because they've done some work to tell them that they had too much risk. Is the analysis of the work as precise or as ideal as we'd like to see it? No. That's why I'm still in the consulting business. We're trying to make it better. But to look at the quality of the information that was produced 10 or 20 years ago versus today, the information has improved dramatically.

I think the other thing is that the level of information that's getting up to senior management, in particular, in the past few years, has really accelerated. It's hard to put a finger on why it's happening, but it's now senior management asking the question, "Well, how much risk do we really have?" and then finding people like myself or Steve saying, "Well, I'm not really sure. I can tell you about this piece over here. I can tell you about that piece over there." I think we need to do a better job of pushing the information out.

But you stop and talk to a lot of people in a lot of companies where they might say, "Those derivatives over there exist because we did some analysis that told us that we didn't like that position. So we went out and we bought all these derivatives." In some cases, it's because some regulator asked them to do it because the regulator

understood the issue better than the company did. But we're getting there and it's changing.

Mr. Thoraclius: Well, my experience is less deep in terms of history, and I would say that some of the things that may be driving it would go back to the investment banking industry, and some of the financial debacles, if you will, that went on in the last five years and crept up on senior management's radar screens. Significantly, I think the whole value-at-risk (VAR) methodology that's out there today has created more awareness of this.

Going back to the original question of whether or not there has been a lot of progress, my assessment of it would be that there has been a lot of progress. There's a lot more interest. There's a lot more knowledge about it. But I would also say that there's a large number of very significant challenges. One of those would be just on the data-gathering side. I've worked with a lot of different companies. I don't know many of those which are able to gather reliable information in any kind of rapid way. It tends to be a very difficult process.

Another issue on that topic is discussion of the risk measures for corporations. What should those objectives be? If you go to various asset allocation or risk management workshops, you'll see a lot of different ideas, and all of them based on very good thinking. But I haven't encountered many companies where, when that question was asked, there was an immediate answer of, "Well, this is what our objectives are." It was much more of a, "Well, you know, there's a range of issues, and it's just not something that's defined yet."

In terms of actuarial work, you have a lot of difficulties in terms of assumption setting that you may make. If you go to a much more dynamic basis, you have many more assumptions, and you have a lot of room for it being all over the place. In other words, you can make it say whatever you want. So there's an issue there that has to be dealt with, and that may come through standardization of modeling companies where you're buying simulations from different companies and running that through your own model. I don't know where that's going to go, but I think there are a lot of significant hurdles yet to be tackled for this issue to be something that we all feel really comfortable with.

Mr. Rachlow: I guess about the only other thing I'd add to that would be that, in the few years that I did asset modeling, the number of scenarios that we tested just astounded me. I'd say, probably ten years ago, we didn't have the computing power to do a tenth of what we do now. The different asset classes that we're in now require that computing power and the models to be able to produce the cash flows to understand the risks you're taking. I don't think it would have been

calculable ten years ago. So I don't think we've wasted time. I think the technology, which has just grown by leaps and bounds, allows us to be able to look at the data on a much finer detail, and the memoranda that we're producing now have so much more information of the asset level of each individual security that I can't even imagine was around ten years ago.

From the Floor: I'd like you to elaborate on the organizational structure involved with the ALM process, the degree of involvement of your investment community, the board of directors, and the involvement of the product development. I'd also like to get a comment, concerning either your company or the companies you consult at, on what the degree of outsourcing is in this area. Lastly, in terms of competitiveness, are many companies pursuing the same investment choices for the various different product classes?

Mr. Rachlow: I'll take a stab at some of that. First, the role of the organization. What we do in the investment company is model each asset on a seriatim basis. We use a couple of different tools, but the main tool we use is PTS. We then develop those models, run the scenarios, and turn that information over to the valuation actuary, who actually is on the liability side. Then he or she combines that with the liability models and produces the memorandum.

From the Floor: Looking at it more from a proactive point of view rather than just preparing the actuarial memorandum, in terms of the product development area, senior management and the intent of management on holding various assets and liabilities, how does that entire process and the degree of involvement of all the various areas in the organization come together? Do you have quarterly meetings with these people? Maybe a block of business or a subsidiary is going to be sold. How does that all come down to you?

And, in terms of the competitive marketplace, are you making investment selection choices? Or are you just, after the fact, modeling the data that's given to you by the investment department?

Mr. Sabatini: First of all, the process is like anything else. If you get the right people, the organizational structure really doesn't change things. What you do normally see from an organizational point of view is the risk management and the ALM function getting centralized somewhere in the organization. It usually resides in an investment organization, part of the chief financial officer's (CFO's) organization as part of the chief actuary's organization. In that way, it all gets brought together. The people involved, at least in theory, have a total entity perspective.

For example, reaching down into the product development process. When you end up with that kind of structure, it allows you, anytime a new product is developed, using some sort of stochastic pricing basis, to recommend an investment strategy, which feeds back into that corporate process. That's generally the way it works in some of the companies that have taken it far; it does get centralized. It also, when it gets centralized, provides a fulcrum for pushing information on a total organization up to the people that really need to see it.

Mr. Rachlow: We have what's called an ALCO meeting that meets monthly. It's an Asset Liability Company, which is headed by our corporate area and our CEO. Some of the corporate actuaries, liability actuaries, and asset actuaries get together and discuss various topics: product development, but also optimizing strategies. One of our biggest debates right now is the total return versus current income debate. The modeling that we do goes back and feeds into their models to help them understand their pricing.

Mr. Sabatini: Just reaching back to one last point that you made. Ultimately, those committees end up defining investment strategy. They don't review actual assets purchased, but they set the guidelines, and those guidelines usually come out of some sort of A/L study.

Mr. Miller: Yes.

Mr. Bruce R. Darling: I first met Frank about ten years ago, and I suspect that when he said that nothing has changed in the last ten years that's because he was so far ahead of the curve ten years ago. One thing I've noticed in my three decades in the industry is that we're all learning more about aspects of investment risk. When I started, it was all on the liability side. That's all I learned. We had these investment people who were doing things without many checks or balances. That continued until Frank got into the business and started cleaning some of it up.

Some of the risks that we used to see were real simple-minded, such as people harvesting gains from interest changes as interest rates went down and divvying that to the stockholders. We invented the interest maintenance reserve (IMR) to stop that noneconomic recognition of gains. But there was a real potential risk of companies being lost due to investment management. There's a saying that more companies have been lost due to investments than anything else.

In the old days, we'd see things like companies selling options on their portfolio, expecting never to have an offset in cost of the revenue that they were generating. Or buying callable bonds to back fixed-interest guarantees, and then having to reinvest the reinvestment risk, or investing long or Executive Life for junk bonds. All

these things had been going on and, supposedly, our A/L work has been rectifying that through the spread of knowledge. We've been articulating what companies' expectations are about possible futures and what the response would be.

I do have a question. I've listed all these things because these are all things that we've seen. Are companies still doing stupid things in your experience? Where are the companies taking the risk where you gently explain to them that perhaps they ought to look at the other side too? I have two areas of risk that I'm concerned with, but I'd like to hear your discussion of the things that you're seeing right now and whether companies are taking risk, in your opinion, or being prudent at this point.

Mr. Sabatini: The comment that I would make, in the practice that I was involved with, I do not see what I would consider stupid things. I would say you see a lot of what I would consider inefficient things—inefficient because information is not being shared, and all the different parties involved are not coordinating their activities. I would call that inefficient, not stupid. They're not doing lively, aggressive things without any coordination whatsoever.

It's like anything else. There's a distribution of insurance companies, with some of them smart and some of them stupid. It's a hard question to ask. There are companies that are taking on risks or doing things that they don't understand. There are companies that are taking on those same risks fully understanding those risks. It goes back to my consciously competent, unconsciously incompetent comments earlier. It varies from company to company. It's hard to generalize. I guess there's less of a herd mentality today than there was back then. Junk bonds were involved. Everybody was in junk bonds. Collateralized mortgage obligations (CMOs) were involved. Everybody was in CMOs.

But I think you'll find, as you look at companies today, there are more conscious decisions saying, "We choose not to be in this product line," because they might not be equipped to deal with it, they might be uncomfortable with the risk, or they might not understand the risk. More senior people inside companies make those statements to me today than they did ten years ago, which indicates that we're probably on average doing fewer or less stupid things.

Mr. Miller: I was just going to say I have seen some dumb things, but those are generally small companies that are acquisition candidates, and so they're not going to be around doing dumb things very much longer. In terms of probably ten years ago, there were times when you could try to start doing rational ALM and get killed by the competition because they weren't. In Mutual of Omaha, a medium-sized company and larger, I don't find people who are competing with us and are doing things that they shouldn't be doing. They may have a higher risk tolerance than us.

They may have a more aggressive expense control or other things that are perfectly legitimate business choices. I think that, in general, in terms of the number of assets in the insurance industry, the industry has gotten a lot smarter, in large part because of computers and being able to answer questions that could not have been answered before.

Mr. Darling: To some extent, as long as the status quo in the economic environment maintains itself, we aren't seeing risk evidence itself. Even though we run all these scenarios, we may not really fear the things that could kill us like the real pop-ups in interest rate that probably would drive a lot of annuity companies out of new sales, if not out of business. Would you address that?

Mr. Sabatini: If that were true, the derivatives market wouldn't be as large as it is today, and there wouldn't be as many derivatives on the books of insurance company balance sheets.

From the Floor: Are they hedging enough?

Mr. Sabatini: That's a different story. If companies are not, it's because they're making a conscious cost-benefit decision. It depends on an appetite for risk. Sometimes it's imminently quantified and sometimes it's not as imminently quantified, but just by virtue of the fact that a larger number of companies have started using derivatives as demonstration, that they have some sense that there's an exposure there, and that they're trying to address it, I'd give the industry good marks in terms of making progress and dealing with those things. I don't think people are blind to the risk issues anymore. I think the question is quantifying it.

Mr. Darling: What about the companies though? Do you think that most companies writing annuity business would survive a pop-up of 2% interest rates?

Mr. Sabatini: That's a trick question. It depends on how it was distributed. It depends on how short the asset duration is relative to the liability duration. It depends on whether the derivatives are there or not.

Mr. Darling: I guess my point is that knowledge about risk exposures is not truly protection against risk. It's just information. The risk still exists and the problems that companies can get into are still available to us. In other words, companies can still fail despite the level of our knowledge. I'm trying to challenge us, perhaps, to not be so self-congratulatory about how far we've come in the last ten years.

Mr. Sabatini: I don't think anybody was.

Mr. Darling: Well, I don't know. The second area of risk is with equity-indexed products, which are a hot product right now because they seem to offer a floor plus the equity kicker. But we've seen the equity markets fall a little bit, and if they continue to stay dormant or go down further, those products, perhaps, will see a flight of money. I suspect a lot of companies will be underwater in terms of market value of assets, because if the equity options lose their value and the bonds that you have are less than the current cash value, then don't you have a severe underwater condition in financing the cash surrenders on EIAs under those conditions?

Mr. Sabatini: The answer is yes. It depends on your product design, and how you invested the assets. But the answer is yes. It also depends on whether or not the policyholders will leave, which ties back to design.

Mr. Darling: There are a lot of vulnerable companies, right?

Mr. Sabatini: I don't know that there's much in force.

Mr. Rachlow: I would say that we developed a model at the Lincoln, a fairly sophisticated model, looking at the investments on the Institute of Actuaries. I don't know if we've covered, or if we've looked, at every single risk, but we did make sure that we looked at a wide range of risks. Now whether the market dumps down to the Depression level of 1929, I don't know. I'm sure there will be a lot of other companies that are going to have problems.

Mr. Darling: Yes. I wouldn't expect that kind of drop. I'm just saying if they become unpopular and the value of the equity option you bought goes away, you're going to be underwater.

Mr. Rachlow: This has been more of an enterprise-wide look at the Lincoln. If the market just drops 10% in value, what's our total downside loss? We've looked at situations like that, and it's just a matter of what you feel as far as assigning the probabilities of that happening.

Mr. Gorski: A follow-up to the question concerning organization, which I think Frank responded to. You left something unsaid. I believe we got to the point where asset cash flows and product cash flows were being combined at some level of the company. I think you used the word "guideline" for assessing risk and managing risk. First, what is the correct interpretation of what you said?

Second, what role does the board play in terms of setting the guideline for a company's appetite for risk?

Mr. Sabatini: Well, there are different extremes. For the companies that have really put a lot of time and energy into it—usually the ALM Senior Management Committee consists of the president or CEO, CFO, chief actuary, chief investment officer, and other key product line people—it depends on how they’re structured. For the example I’m thinking of, there’s an ALM person in each product line. Some are voting members, and some are not, but all the key senior members are.

In some companies, it goes so far as the information getting passed up to either an ALM committee of the board, or the board finance committee, so that there’s a sensitivity to the fact that they’re making significant changes in terms of investment guidelines. That’s been a classic oversight of the board finance committee, and that information does go there. But what you see today are more and more board finance committees seeing risk management information that’s coming out of the A/L process.

Mr. Rachlow: At our company, though, it’s very well-defined. Much like Frank said, our ALCO Senior Committee is made up of the president, CEO, CFO, and product actuaries and investment officer. We also have a smaller group called the ALCO Junior. I’m not sure when they graduate to a senior, but the group is made up of lower level people. They make recommendations to the ALCO Senior Committee. Our company is very formalized, and structured as far as what we’re allowed to do and how much deviation we’re allowed to have. It’s down to portfolio manager level and product development manager level.

Mr. Sabatini: It varies from company to company, but the point I’m making is you see more companies providing that kind of information, and it’s getting up to the board level. It’s interesting how the board members react. The general inclination is, “Well, we want to distill it because they won’t understand it.” It’s amazing how well they do understand.

From the Floor: This is a follow-up question then. If information is passing up to upper management board, is it good information? Is it based on sound assumptions?

Mr. Sabatini: If I did the work. I think this goes back to my comment earlier. I think the quality of what we’re doing is gradually improving, and it’s specific to the individuals in the company. I think on average the quality of the information that’s being presented is improving. Remember, it has to be presented in the right context. I guess it was Eric who made the comment about assumptions. The more sophisticated we get, the more assumptions-driven the results are. The real question is, is a fair picture being presented?

Mr. Gorski: I guess you don't see cases anymore where management is being told duration measures based on quality of durations—

Mr. Sabatini: I'm sure it goes on, but it's rare. Most actuaries in most companies understand that if you have liabilities with embedded options or assets with embedded options with Macaulay or a modified duration, it doesn't work. Actually, companies are moving away from duration because it doesn't give them enough information.

Mr. Rachlow: I would just add that our chief operating officer (COO) and our CFO are both actuaries, so, of course, they understand.

Ms. Sarah L. M. Christiansen: I would like to ask what we can do. I work in asset modeling. While I do agree that we do the sensitivity tests on some other areas such as mortality risk, I have concerns that there are investments being developed such as commercial mortgage-backed securities (CMBSs) based on commercial mortgages where commercial mortgages are securitized. Take something as simple as "real-estate owned," where we don't get any guidance from the investment department on how these things might react to interest-rate changes. All we can do is put in the investment person's best guess—for instance, this is what potentials will be in the future based on today, next month, or next quarter. They will give you their best guess, which you can change. But it would be nice to get the investment people to come up with some rules of thumb. -You have to start somewhere.

Mr. Thoraclius: Can I make just a comment based on my experience? Investment people don't tend to think that way. Investment people, in my experience, are market people. They are people who have been trained to work in a particular market, to know what the product is in that market, and to know what's selling and what's not selling. They're not economists. They're not people who tend to be fundamentally driven. That's just not the side of the world that they come from. I don't think it's not a question that you can really take to them, just that it's not something that they know the answer to, and that's why they're struggling with it. I think you need to bring in people who can provide that type of expertise, but it's not, as a rule, going to be investment people. They know how to get the product. They know when there is a good price in the marketplace. But they're not economists.

Mr. Rachlow: Having tried to model CMBS, we have some general rules of thumb, but it is a guess. There's a guess on the assumption. There will be a guess on the prepayment model that you use and the input that goes into that. The tools we use help us make some of those assumptions a little more straightforward, but it is a guess. Yet there are tools. There is third-party software out there that does help, so I would say maybe it's because we are actuaries and we're able to understand what

you are asking for. I think that we do a fairly decent job with our liability people as far as trying to explain to them the prepayment assumptions that went into the securitized investments, how we got to those assumptions, and how the model that's used for that prepayment assumption would change given the different scenarios that they have.

From the Floor: How likely is it that the investment professional and actuary can proceed from specific measures of risk such as a C-3 risk measure and can tell you how it is mismatched and then put a price on it, going to what Larry was asking earlier. Could you say this is the total risk, whether it's on a probability basis or some kind of a quantitative basis that you can describe? Can you measure that risk? Is that something we should say is achievable in the next 5, 10, or 25 years?

Mr. Sabatini: I think that it's being done today. I think there are companies that are able to make a statement that says, "We have x dollars of risk exposure and we're comfortable with it or we're not comfortable with it." Now, is it across all risk elements? No. A lot of times companies are making those statements in the context of just interest-rate risk, but I think there are some companies that are there today. Then there's a conscious decision that says that it's OK or that it's not OK. If it's not OK, then there are appropriate actions that are being taken.

Mr. Rachlow: We have a fairly new area in the investment company called risk management where we are looking at risk on a macro company level, "company" meaning Lincoln Financial Group level. That group is not made up of actuaries, so we don't have the market on that, but they are trying to look at the risk on a macro level. Not only interest rate risk, but sector risk, and even as low as company risk. How much overall risk and reward are we willing to take both on the debt and equity side and on the private side? We are looking at that. We're not there yet. Our goal is to have the CFO going to bed each night knowing exactly what his or her risk exposure is.

From the Floor: Are we trying to get a total risk package in the next ten years?

Mr. Thorlacijs: All the tools are there. Some of the hardest issues are identifying assumptions. I would say that we're definitely going to get there, and I would say what's going to drive us is the consolidation of the financial industry. Banks, insurance, and everyone's going to be in one big thing.

Mr. Sabatini: It's not the domain of the actuary. There are a number of companies that have hired people whose primary responsibility in the company is risk management.

Chief risk officers are senior level people with executive vice president, or senior vice president titles who are being asked to address all risks: credit, interest rate, equity market exposure, litigation, and compliance. It's a big job. A lot of these people are struggling to get off the ground, and a lot of these people are coming over from the banking industry, which picks up on Eric's point. I think a total risk package is taking place now, and it's kind of funny because I think even though we haven't gotten where we need to be just on the C-3 piece, we're already trying to take it to the next level, which is fine.

From the Floor: Are you seeing more marketing involved in the definition of assumption and the ability to understand the options? Does the company itself care about measurement on the liability side?

Mr. Thoraclius: I would say not a great deal, but I have seen cases where particular products have developed tools specifically for that purpose to give them an advantage. I haven't seen it on any kind of widespread basis.

Mr. Sabatini: I've seen a couple of examples. I think it's rare. Just two anecdotes. In one instance, the organization was trying to deal with what they thought policyholder behavior might be. They finally figured out that maybe the marketing people might know. They actually went and asked, and they got some interesting information out of the process. I personally applaud that because I think they're probably the best people who are going to know, especially if you're interacting with marketing people. If you phrase the question properly, you'll get good information back.

As another example, I've been involved with a company that was developing products in conjunction with the marketing organization. The company would go and do an analysis of risks and come back to the marketing organization and say, "We can't afford to provide that." You would see an actual give and take on the product design side that was being driven by some good risk analytics. So I've seen a couple of examples. I don't know that it's widespread.

Ms. Claire: Eric and Frank, you both mentioned bank people getting into insurance companies. I'd like your comments on, in effect, bank ALM work versus what has been done at traditional insurance companies.

Mr. Sabatini: It's a pretty broad question. I think it's interesting to watch the bank people come into insurance companies. They are used to a very disciplined process with routine reporting. I personally think that some of the banking methodologies don't naturally carry over to insurance. Somebody needs to help those banking people understand that. They're used to a much more disciplined process, with more information going up the organization, so they're questioning it—and I think

that's the biggest difference. Another difference is that the banking people are used to looking at more than just interest-rate risk.

Although the VAR methodologies are basically driven off of market risk, some of the VAR software is bringing credit risk. But when they look at insurance and risk management as ALM in an insurance company, the perspective is not as disciplined and the information flow is not as routine. It's also not as real time. Eric made reference to that earlier. I don't know that it needs to be.

Mr. Thorlacius: The biggest difference I would say, and Frank really touched on it, is that in the banking world everything is overnight. It's a question of what am I exposed to right now? They have a much more short-term focus and a lot more information. I think that's why they're not going to know quite how to handle the more long term nature of the insurance-related issues. But I think they have a lot of confidence, and I think they're pretty aggressive too.

Ms. Claire: Yes. Actually, I'd like to relay a story on that. One of the major banks that is very well-known in ALM work got a request from the FDIC to have an actuary come in to look at one of their derivative lines, and I went in, and I found them being confident that they're doing everything right and they were doing all this reporting, but at the end of the day, they knew their liquidity position, but they really didn't know what would happen a year from now if certain things happened.

Mr. Sabatini: Yes. One of the problems that dominates all of our environments is that their accounting drives their behavior just like our accounting drives ours. The reason they're so shortterm focused is because they're worried about market value changes going through income, and we don't have that problem, at least on a statutory basis. Unless we all have trading accounts, it's not a big issue for us even on a GAAP basis.

Mr. Thoraclius: It's not like it's a disaster waiting to happen, but insurance and banking are both probably less than they could be because so much of the way most companies are run is driven by accounting. You can talk about things that are really creating value, but it tends to all go back to those standard ways that are being accounted for.

Mr. Rod L. Bubke: I can sit in my office and run models for quite some time, as most of you are probably aware. Based on your experiences, any thoughts, ideas, or suggestions on how to take ALM to the next level beyond just running the models and actually taking the results of those and getting them implemented?

Mr. Sabatini: It's part of the natural evolution. The models don't give you the answers. They give you insight perspective. It's then reformulating those results into terms that the decision makers can understand. You can show the president of a company duration numbers and he or she may or may not know exactly what they mean.

The key is configuring the information in such a way that people gain understanding. You also want them to understand too that the information isn't perfect, and what all the variables are. But they have that information and they will be more confident about making a decision, especially if you go so far as to make a recommendation. There are companies that have made some significant decisions, and they got there by getting the information up in terms that people understood. A lot of times you'll see a lot of information go up an organization, but the comprehension isn't there. If the comprehension isn't there, the decision is not going to get made. So you have to find out what works for your organization.

Mr. Thoraclius: I would pick up on that. I think one of the biggest benefits of ALM after you get rid of real problems in the structure is that when you have innovative strategies or ideas, ALM analysis quite often can give you the guts to actually go ahead and do it, as opposed to assuming you have a sound strategy. A series of strong analyses can give you the guts to go after that strategy that you believe in.

Mr. Rachlow: I could add that it helps you, I think, with your investment statement, to go back to your money managers and adopt a different strategy if something comes out of the ALM. You're pretty well set with your liability cash flows as far as the expectations, but I think that ALM might show you something different than what you might do on the asset side, and you could take that and implement what might come out of that with your money managers, and your portfolio managers.