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Session 42PD
Asset/Liability Management in a GAAP Context

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Summary: This session focuses on asset/liability management in a GAAP context under which GAAP earnings are the primary constraint. Panelists present and discuss actual projections and analysis for specific products and blocks of business. Topics include optimizing GAAP earnings and the impact on statutory earnings, establishing appropriate GAAP assumptions for asset/liability projections, required projection tools, modifying optimization constraints and the presentation of results to management.

MR. FRANCIS P. SABATINI: I'm with Ernst & Young. Our topic is asset/liability management (ALM) in a GAAP context, although I've now changed the title to be risk management in a GAAP context.

This is sort of an interesting topic. I don't know that I've seen anybody talk on the subject before. I'm going to try to bring a different perspective to the topic. I might sound sacrilegious. Given that I'm a panel of one, I'd really like to get you to stop me in my tracks and tell me what you really think. It could be on this subject or it could be on any other subject that you happen to be thinking about. What is risk management in a GAAP context? It is management actions designed to address GAAP earnings volatility and erosion in the level of GAAP income.

I actually want to add one more definition, and that is determining if well-intentioned risk management and income generating programs create income volatility. If you're here your organization uses GAAP measurement and reports GAAP numbers or at least you're interested in the subject. How many people can actually think of management programs that have produced unwanted GAAP income volatility? When I start thinking about doing risk management in a GAAP context, I see it as a little bit offense, and a little bit of defense. The defense is needed to protect ourselves from ourselves.

Risk management and GAAP in the same sentence is a novel concept. There is share price and shareholder value and executive management compensation. Maybe we should really redefine this topic not so much as risk management in a GAAP context but as managing executive management compensation. Why is it important? What I'm going to do is go through this list and talk about these items. I'd like each of you to think of any other reasons. I'm not sure I've built the all-inclusive list. I'll ask for audience participation as well. In my mind, the number one reason is relative share price performance. Shareholder value relates back to share price, so share price performance is number one, and shareholder value should be number two.

Economic outcomes ultimately translate into accounting outcomes. If someone is talking about managing to an accounting outcome, then what about economic risk? Isn't that what it's all about? Typically, economic risk or economic outcomes ultimately translate into accounting outcomes. All we're debating on the accounting side is the timing and the recognition. GAAP income, even though it tries to match revenue and expense, doesn't always do that, and it has nothing to do with the recognition of economic exposures. For example, interest rate risk is one risk in particular where the GAAP accounting paradigm actually defers recognition for the most part. However, in credit risk issues, it's a little more immediate.

Why is it important? I believe that stronger stable GAAP earnings allow companies to stay in and implement business strategies. It's a lot easier to operate if things are going well, and if they're not going well, it makes it a lot harder. Stop and think about whether there's some sort of temporary impairment. You report lower-than-expected earnings, and, all of a sudden, it makes it difficult to implement your business strategies.

It all goes back to reporting earnings, and the impact it has on organizations. I wish organizations would adopt the philosophy that my mother-in-law imparted on me when I proposed to my wife and asked her mother for permission to marry her. Her father was going to do whatever her mother said was okay. She said, "I only have one thing to say to you Frank, and that is, if you have no expectations, you'll never be disappointed." I've been married for more than 30 years, and I've kept that philosophy in mind. I wish organizations would adopt that philosophy in their communication with analysts. However, we create expectations and then everybody gets disappointed. Risk management in a GAAP context is all about creating competence in management. We're going to argue later on, or at least I'm going to argue with myself. Why should I be worrying about something that might not be inherently risky in and of itself? I'm worrying about volatility and I'm spending money to protect against it. Why would I want to do that? That destroys value. I want to give management the ability to implement their business strategies, and if they can implement their business strategies, then maybe they're going to create some long-term value. It's sort of circular.

What's the process for risk management in a GAAP context? First, you need to identify the sources of GAAP income volatility and near-term, not long-term, erosion of that GAAP income. That's important and I'm not saying that risk management in a broader context shouldn't worry about those things, but if you're really worrying about risk management in a GAAP context, I'm going to argue that the focus is different. It has a shorter time horizon. It focuses on both risk to the level of earnings, as well as the volatility of earnings.

The second is quantification. How volatile is volatile? How much earnings could you lose over that time horizon? What does developing GAAP risk management objectives mean? What does it mean in our context in a more detailed level? What are those management actions? What are the objectives of the management actions to address those two items? In designing potential programs to meet the stated objectives, what can we do? We frequently find that there's not much we can do other than not sell the product or participate in the activity. There is regular analysis and assessment of potential programs. You're going to see that that's one of my themes because the risk of unwanted outcomes is extremely high. You really need to get your arms around it, and you can't afford to do it from an intuitive prospective. Unfortunately, it's

complicated to understand the cost of reduced volatility or protected values and its impact on long-term-value. If you're going to give something up, understand how much you're going to give up. There's kind of a cost benefit analysis that has to take place. In a perfect world, everything you do to manage GAAP income and GAAP income volatility is also clearly aligned with long-term-value creation. Fortunately, I don't think that's true. Finally, ensure that the programs are not in conflict with some of the other things you might want to do from a pure economic basis. Then, implement, monitor, and measure. The one thing I didn't include on this list is to communicate with management in terms that they can understand and comprehend. Give them enough information so they can make some good decisions.

Long-term-value creation is important. It's what we're all about. It goes back to the point that I made earlier. If there are things that are happening in the way you're reporting your results to your external office audience that causes them to take a negative view of your organization in terms of impact on your share price, it makes it harder for you to implement the business strategies to create long-term value. Even if you do things that are economically destructive in terms of value, there's the intangible value of being able to operate unfettered or with less constraint. One could argue that you could somehow quantify the long-term value from that, and it would offset the kind of recognizable clear cost of doing some of the other things. It is a little harder for actuaries to address conceptually than it would be for some other people that have been trained differently. At a minimum, it should be a constraint. If you go back to my list of steps in terms of process, there are a couple of instances there where there are checkpoints. Make sure you're not destroying too much value. Understand the costs that you're giving up or the value that you're destroying to give you the more stable earnings patterns or protect against lower earnings. When I say avoid destruction of value, I mean that you shouldn't destroy so much value that by protecting earnings in the near term or earnings volatility that you can never overcome the destruction in value.

What do I mean by why GAAP first? If you look at the process that I laid out for risk management in a GAAP context, it didn't say identify risk. It just said identify sources of near-term erosion and sources of income volatility. I took the GAAP first prospective. The natural inclination would be to manage risk from an economic prospective, but there are some clear

examples that demonstrate that, if you take the economic risk viewpoint first, you'll end up implementing programs. I think I have some examples that will actually produce more GAAP income volatility than you had to begin with. So GAAP first places the focus on ensuring that the outcomes do not make the results worse. It's sort of counterintuitive to what you normally want to do. I've had conversations with some clients and potential clients, and they clearly say "We've looked at this program, and we couldn't get it to work on a GAAP prospective." Having thought about it and having talked it through with some clients, the conclusion clearly is that the problem is that you looked at what you were trying to do from an economic prospective, not from a GAAP first prospective. So it worked economically; it just didn't work in the accounting context. It created all this volatility, so maybe we were attacking the wrong problem in the first place. It's not that reducing economic risk isn't a bad thing, but it leads to not implementing a program, which then means you still have economic risk exposure because you couldn't find an accounting friendly result. What did we do there? We did the wrong thing for the wrong reason. I do know that you can do the right thing for the wrong reasons, the wrong thing for the wrong reasons, and so forth.

Let's talk about what I would call GAAP earnings risks. The market goes down, revenue goes down. The market goes up (at least used to go up), and the fees go up with them. The problem is there's nothing wrong with the fees going up and down, if we expect it to go up and down with the fees. The problem is we haven't figured out how to do that yet. The whole revenue issue comes up and down. One of the things that we haven't done as a professional group of risk managers is focus on the fee volatility as a risk management issue. It drives right into managing GAAP or risk management in a GAAP context.

We're all worried about the embedded guarantees in an economic context, so clearly in the GAAP context, they're there too. They're there in a variety of ways. They're there in terms of the actual claims; they're there in terms of the impact they have on balance sheet presentations and in terms of funding for future exposure. The policyholder, lapse and transfer behavior are obvious. Then there are the things we all worry about—DAC amortization, reserving for the guarantees, and even things like *FAS 133*.

There's something everybody is familiar with as far as the GAAP risk management issues around variable products. How many people have thought of investment activities as having GAAP risk management issues? It's a big deal I know we're all experiencing the latest rage in the credit cycle.

On bond defaults, you lose income. As long as you hang on to them, it's lost income. You can sell them, but the investment guys are saying, "The bond is now at 30 or 40. If we hang on to it until it comes out of bankruptcy, can we get 60? If we can, we'll hang on to it, but we lose the investment income." So any kind of increased level of activity around bond defaults creates volatility around income from two sources. In one case, you write down the impairment value so that it ultimately finds its way into net income. You also lose the investment income. There are many companies that have what I call active credit risk management programs. Those programs will sell out of positions because they believe that the bond price is going to give them more value than they would get out of the Chapter 11 bankruptcy or for other reasons. As credits begin to deteriorate, some companies will sell out of those credits. If a AA moves to a A, there are some organizations that will sell those issues as a credit defensive measure. That creates GAAP income volatility and people are just starting to realize the impact they have, depending on the volume of these sorts of activities. There are a lot of companies that implement what I call income enhancement programs. They do mortgage dollar rolls, securities lending, a variety of buy/sell programs, gain/loss/neutral for yield enhancement, and all that other stuff that creates income volatility. If programs are large enough, they have an impact. Anything that has to be valued on a *FAS 133* basis creates GAAP income volatility. Even CMO prepayments of certain types of bond calls create income volatility.

Maybe each of these different things in and of themselves might not create enough volatility but, in aggregate, they might. They certainly contribute to it. It depends on your per share sensitivity. If you're worried about things that might cause a one or two cent move in share price, all these things for most companies are on the radar screen. Is there a different way to manage credit so that we don't create income volatility? In the context of risk management, I'm saying that is one of the issues that you might want to think about.

Interest rate-related issues. I don't know if it's good news or bad news, but interest rate risk in a GAAP context is slow to emerge. One company is mismatched long two years; the other company is mismatched short two years. You're really not going to see much difference in their reported GAAP results. There really isn't much to worry about in terms of managing risk in a GAAP context from an interest rate perspective. That's why it was third on my list. There are things like spread compressions; you still have embedded guarantees. Eventually, if our portfolio rates start bumping up against the guarantees, and you start getting compressed, that's going to become a GAAP income issue. Lapse behavior and persistency always affects GAAP results. Of course, you have *FAS 133* on the liability side. If you're not careful, you can have a liability that's not a *FAS 133* liability put into a reinsurance treaty. Suddenly, the reinsurance treaty becomes a *FAS 133* derivative that has to be valued on a marked-to-market basis.

I guess the next point in my thought process is, should we establish a chief GAAP risk management officer? The answer is no, I don't think so. I mean there shouldn't be a separate process. I would imagine that, on an informal basis, in most of your organizations, it is going on. It's probably not highly controlled, and it's probably not as organized as it should be. Not all the right people should be involved. Maybe one of the benefits is recognizing that GAAP is part of risk management. Let's organize around it. We have a risk management function in the organization, and managing GAAP income exposures, whether it be volatility or just the level of GAAP earnings, is part of the risk management process. It's economic. We've been managing risk in a statutory context, whether we want to admit it or not, and many of us do it in an embedded value context, so why not GAAP? If you're thinking of all of them at the same time, the natural complex that will occur makes the decision process a lot harder. However, the quality of the decisions will be better because you're looking at it from all the different angles. How many people believe that within their organization there is an informal GAAP risk management process? I had a sense that it might be a large percentage of the audience and it was. Why don't you formalize it. The one thing I want you to take away from this session is that you're going to go back and you're going to influence, within your organization, getting GAAP recognized as a risk management activity and integrate it into the general risk management activities in the organization as a whole. Once you've consolidated, then it's incumbent on the risk manager to present the various views.

I can't talk about risk management in any context without talking about the platforms. As I move forward with this discussion, I'll probably touch on it again, but I wanted to touch on it generically. What does the platform need to do? It needs cash flows. We worry about doing cash flows. They need to do statutory results, but now Sabatini's introducing stochastic GAAP into our world or at least scenario analysis on a GAAP basis. It can be done. You need to be able to quantify the effects of alternative strategies. I'm going to reinforce that idea that you really need to do that. If it's not obvious, I'll make it obvious by the end of the talk. You need to be able to deal with the specific features of your business. Practicality may require some approximations, but you need to be clear with that. You need to get comfortable with that, and this puts a premium on having systems that are flexible. I'm going to give you some examples around the idea in a little bit.

Let's talk about variable annuity risk management in a GAAP context. Let's talk about a marked decline. Of course, if the market goes up, we can reverse the numbers. Let's just make sure that we're all on the same page as to what happened. So as the market goes down, fees decrease. What happens to operating expenses? They remain the same. Death benefit claims could go up, right? You would expect them to go up if the guarantees are in the money. If the market goes down, they're either closer to being in the money or they're more in the money. People do die and, unfortunately, you have claims. If all other things are equal, GAAP amortization increases and a GMDB GAAP reserve, if you're holding one currently, would increase, depending on the kind you have. For the rest of this talk, make the assumption that companies are holding a GAAP reserve that is either consistent with the long duration task force proposal or something similar. So if the markets go down, guarantees are more in the money, and the reserve increases. I have seen reserves go the other way. In this case, the GAAP reserve would increase. The income impact is that net income goes down from where it was before the market declined. You have a lot of things happening in your income statement that are going in the wrong direction. There's nothing that moves in the right direction. It's a little bit of a double whammy. You get the fee impact whammy, and you get the accelerated GAAP recognition. Your claims go up, and your reserve for future claims goes up. It's not particularly pleasant. Any action that mitigates any or all of these is worthy of consideration. It is a much different thought process from the economic thought process. The economic thought process would naturally lead you to the

embedded guarantees, right? Guarantees are risky, so you manage them. I view every one of these items, other than operating expenses, as a viable hedge target. You'll see that soon.

Let's talk a little bit about the role of reinsurance as a risk management tool. It has been a very effective risk management tool in the reinsurance industry, particularly on an economic basis and from a reserving basis (to the extent that you get it structured right and you get credit for your AG 34 reserves). Depending on what's going on, you get some unwanted effects, but it has been a very good risk management tool. The pricing on the stuff, historically, as we all know, was so good that it was hard to pass up. It's not more expensive, it's not always proportional, so you now can run into nonproportional coverages. At the end of the day, what does it do to help with GAAP risk management. It may reduce your claims a little bit, and that's nice. The fees you pay on the reinsurance may be correlated with the level of the market, so that means the market goes down, and your fees go down on the treaty. That might help, but what else would it do? It doesn't really help you with anything else in your GAAP income statement. The point is, the reinsurance, as a tool in a GAAP risk management context, isn't particularly effective.

Let's look at a hedging program. There are many different hedging programs that you could consider. Let's conceptually look at the way it would work and how it would impact an income statement. If you implement some sort of hedge program, what will happen to the income statement. The market goes down, fees go down, and you now have a hedge book. Assuming that it's on a marked-to-market basis, what happens to the value of the hedge. If the hedge is designed to protect against the decline in the market, then the value of the hedge increase, the change in the value of the hedge, goes through income as an increase in value. That's offsetting the decrease in fees, the increases in the death claims, the DAC amortization, the increase in the GAAP reserve, offset by the cost of the hedge. Now, what's the net income impact? It all depends. It depends on whether or not you've designed the program properly. It's very easy to design hedge programs that actually increase the volatility of net income, rather than decrease it. That's why I made the point earlier about focusing on quantification and focusing on what it is you're trying to manage to and why some people have implemented hedge programs that have

gotten increased GAAP volatility. If it's properly designed and properly thought through and properly implemented, it can reduce and stabilize earnings, and it can stabilize them at a higher level. It can also reduce the volatility.

You're buying hedges. They're expensive, and they're reduced out of the box the day you buy them. Now you could be doing things where there's no dollar outlay day one. In effect, the implemented hedge program has cost. It either has an upfront cost, or it has a cost that accrues over time through the management of the program. The natural inclination by management in a lot of groups is, even when you look at it from an economic perspective, it's expensive, particularly when you look at it from an economic perspective. It's very easy to realize that the insurance industry today issues death benefit and other guarantees in variable annuity contracts. If you looked at them as if they were a financial instrument and used the risk-neutral pricing, you would end up with a price that's greater than the industry's charge. I could spend an hour talking on both sides of that issue, and I actually have an opinion. I'll give you the short version of a long story.

In my opinion, the decision to price an insurance contract that doesn't have efficient execution by the policyholders at a price that's lower than what it might cost you to hedge it in the financial market is a decision not to hedge or is a decision to hedge and absorb the loss. We're in the risk-taking business. You want to be risk neutral, right? If you sell somebody a derivative, you can be on the other side of the transaction. You have somebody or something on the other side of the transaction that makes you risk neutral and you make the bid/ask. The last time I checked, the insurance industry is not in the bid/ask business. How many people think you're in the bid/ask risk/neutral business? You can argue that maybe you shouldn't be financial intermediaries and you should be more underwriters, but that's a different topic for a different day.

The point here is that when you start looking at some of these things in a GAAP context, you don't say, "Price and program is more expensive than the cost of the underlying guarantee." You look at it in the context of the course of the program and the context of the objective you set out to do. Maybe the objective was to reduce income volatility. It might be worth it or you might even be willing to accept slightly more volatility by having this program. However, by having

this program, we're going to have higher earnings as a result. They'll be higher in many situations, but more volatile. You need to ask yourself whether that is an acceptable outcome. However, that's a different cost benefit perspective than the one that we have naturally taken in a pure economic risk context. Designing the program is the key. The hedge target can be any one of these numbers. Of course, if you focus in and you say we really want to hedge net income, you're, in effect, hedging all the other items. Depending on how you design the program, it's going to have implications of what instruments you use, notional amounts, security structure and whether or not you need to actively manage the books. Many of these programs will lead to increasing notional amounts.

Defining a hedge program that somehow closely fits the behavior of the hedge is nearly impossible. These are hedge programs that are designed to be directionally correct. It's not like what you're trying to protect against goes away and you're fully mitigated if you put the hedge program in the way. It's not like a reinsurance program. It's also not like hedging the index option in equity-indexed annuity, where by buying the S&P 500 call option, you effectively mitigate your exposure to the index. You have other risk issues. It's achieving a state of objective, which might mean we want to preserve GAAP earnings at a certain level or we want to protect against the way the DAC balance might change over time or protect against unwanted large increases in the GAAP benefit reserve.

Each of the possible hedge targets, which makes it more difficult, exhibit different levels of correlation in the market movements. Even revenue is not dollar for dollar with the S&P 500. You have bond funds in there with fixed account values, and your policyholders are buying all these exotic funds, including Czechoslovakian stock funds with guaranteed minimum accumulation benefits (GMABs) and guaranteed minimum income benefits (GMIBs) that are attached. My point is it's not an easy process. There have been people who have implemented programs like this with a fair amount of success, but there have not been many. So designing an effective program means you need to evaluate the objectives. What are you trying to accomplish? There's a wide range of possible objectives, and once the programs are conceptually defined, they have to be evaluated. You cannot afford the risk of thinking you've accomplished something to find out that you've accomplished just the opposite. When you start

using derivatives in GAAP income statement items, the chance of coming out with the wrong results, thinking you had the right results, is pretty high, which goes to the whole analysis process. You must have the right analytical tools in place to do this. At the end of the day, if you're going to use derivatives, you really need to replicate the program.

You have to model the level of GAAP income and the volatility of the GAAP income. You also need to model the hedge program and replicate it. It's not an easy thing to do. Is it doable? Yes. Does it take some time and effort? Yes. But if you weigh the time, energy, and effort against the potential benefits, it is worth it. Inaccurate replication of the hedge program, even though it's at the bottom of the list, is probably the most important thing.

I'm hitting on the same theme. Given the lack of natural correlation between the hedged instruments and the hedged items measurement is imperative. It's absolutely imperative. If you can't measure it, don't implement it because, more than likely, you'll end up with unwanted income effects. I suspect that many companies have looked at some of these things, and it's the fear of the unwanted effect that has caused them not to implement. They didn't invest the energy and the effort in really convincing themselves that it was the right thing to do. So much for variable annuities. Nonetheless, it deserved some attention.

As I said earlier, some investment activities could create income volatility. In this case, as with some of the variable annuity case situations, they're incremental or independent of any inherent economic risk. They might result from mismanagement actions designed to mitigate economic risk. You might manage economic risk in a different way when you consider the GAAP risk management problem. I guess we're going to look at an example. Let's take credit risk. I described the process earlier. There is a long-standing risk management policy within the company to do certain things with downgraded bonds and defaulted issues. There might be a policy that says we seldom put the money back to work. If issues begin to deteriorate, we sell out of them. It creates a lot of capital loss activity, and it creates reduced income. The use of credit derivatives, for example, becomes an alternative to managing that credit risk. As opposed to selling them, you use the financial instruments as a hedge. All of a sudden, you've introduced, at some costs, a financial instrument that gets marked-to market on the balance sheet, and that

offsets the losses from defaults in the lost investment income. So we're assuming that that's a reasonable alternative to actually liquidating the positions. Suppose you buy a particular credit history and put it together with a particular bond. If you even get hedge accounting on that, you need to think about whether or not you want it. The question is, if I look at it in the aggregate, how much credit-driven volatility is there, which raises a question. We know how much was there during the last period right? What am I trying to protect myself against? There's a lot of anxiety about credit issues because that's the big deal today, and they're eroding income and creating volatility in period-to-period reported earnings. It's a problem, so let's fix it. The question is, what's the bogey? How much volatility is there? The second question is, how effective can a derivatives program be? Maybe the third question is, how much protection is needed to meet economic and GAAP risk management objectives? My point is, new questions require some new perspectives.

Let me pose a new process or a new idea. We have this problem, so how do I quantify it? You identify, and then you quantify. What I'm about to do is walk you through a process that gets at the quantification. We're out of the 20 basis point haircut environment. Our view of modeling credit risk, as actuaries, has always been if you have a AA bond, that's 7 basis points, and if you have a BBB bond that's 20 basis points. You either apply them by rating level or you apply them with some weighted average. Every year you get these prorated defaults. Well that might work for some of the stuff we've done historically and may continue to do historically, but I don't think it's going to work for the future. So we're on the edge where we need to advance the use of technology in helping management understand exposure to credit risk, both in an economic and in a GAAP context.

Here's a process that we've used. There are others, and I'll just describe it conceptually. You take all your bonds. Let's just say we have a corporate bond portfolio. You project the cash flows and investment income under a stochastic set of interest rates. We know how to do that. We actually might argue that we're good at it. So step one is a no brainer. We find some technology. It's out there, and there's a lot of it. There are about four or five credit modeling systems out there that can be used with different underlying mathematics, and they have fairly well-grounded mathematical foundations. They can actually take your bond portfolio, as an

input, bond by bond, and use those underlying mathematics to produce, based on the current environment, specific bond default probabilities. Today General Motors has an X basis point probability of default. You can do that for your entire portfolio. If you're able to do that, then you can develop a stochastic process in its simplest form. If you have 1,000 bonds, they all have default probabilities. In every period you can put bonds through the process. You flip the coin. You now have a default probability, so you can flip a coin. If the random number comes outside the default probability rings, the bond continues to perform. If it falls on the other side, it defaults. You can do that for every bond. Then you go to the next period. So what do you end up with? You end up with a period-to-period definition of which bonds default in which period, and you do that stochastically. You run 1,000 scenarios around the bond defaults. When you do that though, you do it in such a way that you integrate the correlations that different bonds have with each other and different industries have with each other. It wasn't just WorldCom; it was the telecommunications industry, so there's a correlation. Those industries have had a correlated effect on other industries that are dependent on those industries, and so on. There's technology today that allows you to say, if WorldCom defaults, that also increases the probability or has an impact of having these other bonds default. We can put it through this process.

So now I have projection of cash flows and income, and I have a projection of bond defaults and I know which bonds default. I also have these default probabilities that can help me define what the spread is that I should use to value the bond. Some faith is needed here. You need to be a student of the components of spread and to know how much is default, how much is risk premium, and how much is liquidity. How do you define those things and which ones are variable and which ones aren't? Assuming that you can make those assumptions, you can get to a spread. If you can get to a spread, it tells you how to value the issue. Then, when you sell the bonds, you have a process that says, here are the rules that we're going to use in our management process to select. By the way, if you use a default probability process or other processes to define not only the bonds that default, but the ones that become downgrades, then you can feed into a process. You now have a projection of defaulted issues, and you have projected downgrades. You also have a projection of liquidations of positions that's part of a risk management process according to some set of rules. You can overlay so you end up with that forecast. You can marry the thousand interest rate scenarios with the thousand default scenarios. There's a presumption

here that the default event is independent of the interest rate event. There are no data to suggest that the two are correlated. Some people feel that they are intuitively correlated. There are others that will argue that they're not. There's more data to support this correlation between different issues than anything else.

So the process for assessing the benefit of these programs requires these new analytical approaches. You take the outcome of the process I just described, and you now have a distribution of credit event GAAP income impacts over a defined horizon. I mean you can use this methodology for a 30-year projection. In my context, I'm thinking three months, one year, three years. In addition, it reflects the current credit environment. If the credit situation improves, the default models are going to be lower. If the credit environment is worse, I'm going to get higher default probabilities. I can start integrating the use of the credit derivatives into the process. Allow me to review the effectiveness of the use of credit derivatives and what impact they might have in terms of mitigating both economic as well as GAAP-related effects associated with credit risk management. You might think about it and ask me some questions, but that's a totally different view on how to approach credit risk management, particularly in a GAAP context.

I wanted to talk a little bit about interest rate risk-related issues. This is where it gets a little harder because of the GAAP accounting. We can use interest rate swaps, caps, and floors. That's an accepted approach to managing duration and convexity positions. GAAP requires that these positions, in most cases, be marked-to-market. Doesn't that mean GAAP income volatility? We're doing duration management, and maybe we need to rethink the way we do it. Unfortunately, there aren't many alternatives. The question is, are the positions big enough or material enough that they have an impact on income?

Historically, our risk management practices have led us to implement these things, and now we find out that, in a GAAP context, they create volatility for us. It forces us to think about alternatives.

Here are my points. Take risk management in a GAAP context seriously. It's important to management. How many people believe that management cares more about GAAP risk management than economic risk management? I was going to say maybe we shouldn't ask that question; management might be in the room. It's important to them, and it's important to your organization. GAAP income volatility doesn't help anybody. I mean I wish the accountants would figure it out but they haven't; you have to live with it. Maybe you should be organizing and managing and incorporating into your risk management process the whole idea that GAAP is part of the problem. It requires a change in mindset. It's both offensive and defensive. It is defensive in the sense of protecting against implementing things that might make economic sense but don't make good sense in a GAAP context. It leads to evaluating it so that you can then communicate the trade-off to management. You can't lose sight of long-term-value, and it is important.