

# RECORD, Volume 30, No. 1\*

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Spring Meeting, Anaheim, CA  
May 19–21, 2004

## Session 79PD

### Premiums and Promises: An Investment Perspective

**Track:** Long-Term Care, Investment

**Moderator:** MARK D. NEWTON

**Panelists:** MARCO A. BRAVO<sup>†</sup>  
RICHARD B. PITBLADDO  
LARRY H. RUBIN

*Summary: This session is designed for actuaries involved in investing for, pricing or valuing long-term-care (LTC) insurance. The panel discusses how to analyze LTC flows from an asset perspective, recognize embedded derivatives in LTC and determine strategies for hedging fair value. The attendees learn to view LTC from an investment rather than a liability perspective, recognize embedded risks in today's LTC marketplace and deal with investment risks in LTC.*

**MR. MARK D. NEWTON:** We've done this a couple of times before. Maybe some of you have seen what you're going to see again today, but the subject is important enough and unusual enough to most LTC actuaries that a refresher is also good. Some of what you'll see today is a refresher and some of it will be updates, because the current conditions, or at least the conditions in the last six or seven weeks, are a little different from what they were immediately before that.

I'm so happy to have this panel with us today. These speakers are the cream of the crop as far as investment management goes in the LTC industry. Richard Pitbladdo, with LTC Global Solutions, is an old friend of mine and an old associate. We worked together initially in the days when this subject was just becoming a part of what insurance companies do and think about. Richard and I worked together at one of our former companies to bring a strategy to bear to handle some of the investment risks with LTC. Larry Rubin is a principal with PwC. In his prior experience and investment banking experience, he has done the same thing, working with other

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<sup>†</sup>Marco A. Bravo, not a member of the sponsoring organizations, is a principal with Asset Allocation and Management, LLC in Chicago, IL.

**Note:** The chart(s) referred to in the text can be found at the end of the manuscript.

carriers, so he'll tell you about that. Marco Bravo is a new associate of ours with Asset Allocation & Management Company in Chicago. He's someone that I heard speak at the conference before. I liked what he had to say, so I asked him to say it again. It's worth it to hear it again. We have a country-wide view. Larry is from the East Coast, Richard is from the West Coast, and I had to insert Marco for the Midwestern view of the world.

We do have a lot to cover today, and I think you'll find it interesting. Some material you might have heard before, but there will be some new stuff, as well as some nuances that we've come across lately in our search for the silver-bullet solution to this problem. The economic environment is still changing rapidly. The jobs report six or seven weeks ago was a huge surprise upward. Interest rates went up 25 basis points in a day. That was a welcome change from what they had been doing. Inflation is peeking out from under the covers again, and raw materials prices across the globe are in an astonishing bull market. It's not just oil; it's all kinds of raw materials prices. That will work its way through the system at some point, and we'll probably see some more inflation before we go backwards. Then you have other things—the budget deficit, the trade deficits and the drop in the dollar. For those of us whose assets are primarily in dollars, that's not welcome news, but that does affect what happens to us in the interest rate environment. We want to discuss some of that, too.

**MR. RICHARD B. PITBLADDO:** Today I'd like to talk about interest rates: where they've been, where they may be headed, what it means for management of LTC business and what we can do about it. These slides I prepared are a derivative of a presentation I made in Boston 18 months ago. It's nice to look at what I said then and how things have tracked since that time. Has the message changed, or is it still consistent? We have more data. Unfortunately, I prepared this two months ago and a lot of things have happened in the last two months, so there's going to be some extra talk that's not on the slides. But I think my conclusion is that what has happened in the last couple of months is really nothing in the big picture.

Chart 1 shows a picture of LTC interest rates on a 10-year U.S. Treasury over the period of time we've priced LTC products. We priced LTC products at those rates during those years, and we're still investing for those products we priced five or 10 years ago. That's the fundamental problem with LTC. You price it, you put it on the books and then you're still investing for a long period of time at rates that you had to predict, but have to materialize at levels possibly higher or lower. The problem is that they're generally lower than during the pricing period. Some of you may have faced the music at the end of 2003 with the exercise of cash-flow testing for statutory adequacy of the active life reserves for GAAP recoverability testing. It was starting to get ugly at the end of 2003. More important, from a standpoint of managing company solvency, is the long-term underperformance of the business.

What do you do if prices are based on interest rates in 2000, when the Treasury was up at 6.5 percent? It's time, if you haven't already done so, to get that ball

rolling and improve the pricing of the LTC product. There are a number of things you can do. We'd also like to talk about other things you can do to protect from further rate deterioration. Then I'd like to deal with the question of further deterioration. Interest rates are clearly on their way up, so what's the problem? We'll bring in some data.

Let me go straight to the lessons we can draw from Japan. I shared this chart (see Chart 2) 18 months ago. These were rates. The red line is the S&P 500 Index up to 18 months ago, and the black line is Japan's equity market 10 years before. There's a remarkable and eerie tracking between the Japanese economy, displaced 10 years, and the U.S. economy. Another eerie fact of life is that the Japanese demographics are virtually exactly 10 years in advance of the U.S. demographics. What happened in Japan in the intervening 10 years is that equity markets jumped up soon afterward. They then leveled off and went in all sorts of different directions, but ultimately ended up about one-half of what they were at the time. The U.S. equity markets over the last year and a half or two years have tracked this same pattern, almost exactly.

More important, what's relevant to LTC investment management is the fixed-income market, the 10-year Treasury interest rates. Eighteen months to two years ago in the United States, interest rates had come down. If we go 10 years before in Japan, interest rates had come down even more. The mindset here is, they've come down so far that they're bound to go back up. There's bound to be a regression to the mean, whatever the mean is. There was a lot of resistance to hedging, although some companies were bold enough to do so. It would be a disaster if you didn't hedge LTC assets because interest rates track down over the next 10 years to 1.5 to 2 percent for the 10-year Japanese bond.

Interestingly enough, if we take a look at what has happened in the intervening period, we have an issue in the Japanese market where interest rates came down sharply, and then they came back up again. This is exactly what has happened in the United States. We had this panic in the summer of 2003 where suddenly this wasn't just a presentation by a bunch of actuaries; this was Greenspan talking about the Japan scenario. The Japan scenario became real and a matter of public discussion in the summer of 2003. In Japan, the same sort of thing happened. There was a quick low point, and now we're in this comfortable position where everybody is seeing rates go up and finally the pressure is off LTC liabilities. Finally we get some breathing room. Interest rates are on their way up; we surely don't have to deal with this problem.

Let's take a look at where we are relative to the Japan picture. We're right there right now. In Japan 10 years ago, everybody was feeling the same kind of relief. Interest rates were up. Finally we've had the worst of this terrible decline in interest rates. All of the financial markets were predicting interest rates going up further in Japan 10 years ago. Everybody is predicting interest rates to go up further in the United States at this point, and look at what happened in Japan. From the mirror-

image point 10 years ago going forward, interest rates went nowhere but down, consistently and precipitously. You want to be careful about putting too much emphasis on the prognostication of people saying where interest rates are going to go. Pay attention to a real history. This is not just some fictitious scenario generated by a Monte Carlo generator. This is something that actually happened in an industrial economy that has a lot of resemblance to the U.S. economy. Will we follow Japan's path? I don't really believe it's a necessary conclusion that we'll follow the path. It's just that it's a reasonable probability that we, as actuaries, have to take seriously.

One mitigating factor is that the Federal Reserve is very aware of the risk and has, over the summer of 2003, worked very hard at devising some mitigating strategies. We have the recent signs of pipeline inflationary pressure. I wrote this two months ago, and they are being revealed in the economy now, so it's working its way from the metals market and the wholesale up to the resale. Money supply, as of February and March, is rising again. My personal opinion on what's driving a lot of this rise in the money supply is cash-out refinancing of mortgages, which is going to close off very quickly with interest rates rising. There will be less refinancing of mortgages, and the money supply might be slapped closed or even declined.

I do have a Ph.D. in economics from a decent school, and one of the things that I learned was that macroeconomics is not a science—they really don't know what they're talking about. They do the best they can because it's an important problem, but don't take the predictions of any model seriously; it can go anywhere from this point. I mentioned the demographics. One factor that's not in everybody's model is demographic concerns, whether we can do all this twiddling right and left, and really, what's driving underlying is just demographic events.

In Japan 10 years ago, everybody thought that the central bank was being accommodating; it was almost being irresponsible on the inflation side. But the deflation happened anyway, and they have all sorts of hindsight analysis. Really, if you look at it this way or that way, they were contractionary. Who knows—the Federal Reserve could be contractionary now.

Here's another picture (Chart 3). I think Phil Barackman has illustrated this picture at other conferences. Like Phil says, there have been two trends in interest rates—up and down. When you talk about a regression to the mean and take a very narrow focus of the last five years, your regression to the mean would say it's going up. However, if you take a look at the long period of history, regression to the mean of interest rates isn't necessarily that they'll come back up. Regression of the mean might be happening on the way down to 2 percent.

What do we do? Restoring new business profitability is something that has been addressed by the industry. There are a number of other strategies. I'm going to touch on some of them. The first thing to notice is that you have to do everything you can to extend the duration of the investment portfolio. One way to do that is

invest in longer bonds. Marco will indicate some of the constraints and some of the difficulties of investing long if you want to have a diversified portfolio. Zero-coupon bonds are another strategy to go longer. The problem assets are callable bonds and mortgage-backed securities pass-throughs with no interest-risk protection. These assets look nice and have a nice yield. They might be 30 years, but as soon as interest rates go down significantly, they get swept away from you and all of a sudden you have to reinvest in a low-rate environment. Any kind of duration of those disappears exactly when you need the duration. Equities are something to stay away from unless you know that there's some embedded fixed-income play in the underlying, for instance if it's acquiring the investments of a company that invests in long fixed-income assets and borrows floating rates. That would be a decent security, but there are not too many companies like that. I know of a few, but I wouldn't advise investing in equities in a strong way.

The advantages of going longer are not only protection of risk on the downside interest rate scenario, but with the yield curve today, you just earn more income. The earning power of the investment portfolio is a very important risk protection for the policyholders. The disadvantage is that going long in corporate bonds exposes you to a lot of credit risk. The main problem with relying on a strategy like this is that it just doesn't get you there. It's not sufficient enough. A typical LTC block of liabilities will have a 25- to 30-year duration. There are some significant exceptions to that on the higher and the lower end, and about as good as you can do is 12, 13 or 14 years here.

Larry will cover interest rate swaps in more detail, but this is now the current best standard of practice by some of the bigger companies. We are looking at companies like GE, John Hancock, AEGON, UnumProvident and some of the bigger players. Significant players—players that happen to have a measure of success—are using forward start, receive fixed interest rate swaps. Larry will talk about this synthetic way to lock in rates on future investments. They're very effective at mitigating the risk if structured properly.

They do have some disadvantages. First of all, derivatives, even though they're a very effective risk management device, are very spooky when you get up to corporate management. There are some corporate managements who say, "I just don't want to go there. I heard Warren Buffet said bad things about derivatives, so forget about it." The GAAP accounting for companies that are public can be treacherous with FAS133, and there are a lot of issues with tax accounting. You have to be very closely focused on the tax regulations on derivatives, especially derivatives with offsetting positions.

If you're a mono-line LTC company, this doesn't apply, but if you have other liabilities that are shorter durations, you can kind of reverse the tables of time. Instead of investing for LTC separately, I'm going to bundle those liabilities together and see if I can invest with a bundle, without using all these derivatives and fancy stuff that I don't want to do. This can be done fairly effectively if you use

the example of a single premium immediate annuity (SPIA). It gives you a single premium that is a whole pile of money, and you can invest that pile of money to cash-match the LTC benefits. On the other hand, LTC on the incoming side has premium cash flow that is a very close match to the SPIA benefits, so if you take the premium you get for the SPIA and invest it against the LTC benefit payments and vice versa, you can actually develop a bond portfolio that's a very good cash match.

The problems with this sort of strategy are all the problems that motivated companies to invest in separate segmented accounts for the different products, including profit accountability, pricing rigor, etc. The biggest danger to something like this is for the SPIA product management to say, "Well, now that we're investing in longer securities and getting a higher yield, we can increase the implicit crediting rate to the customers." Then you just throw away a lot of company value. One of the strategies that we used in my former company very effectively in partnership with Larry was to actually, rather than using a liability on the books to create a new liability, create a structured liability and issue it to the policies. The way we did that was a funding agreement, or guaranteed investment certificate (GIC) liability. We used the GIC and sculpted it to the profile we wanted. Larry will have more to say about that.

I don't think anybody is going to talk about this other strategy—using reinsurance to tackle it. Suppose you didn't want to deal with managing the investment risk in any other way. One of the strategies is to let a reinsurer do it for you. One of the ways you can do this, to skim off the asset risk and retain the other risks that you have (like morbidity and persistency risk), is to cede on coinsurance and assume back the business on a modified coinsurance (modco) basis. But this is a modco basis with a twist, where the modco adjustment is fixed and guaranteed by the reinsurer. This is just a way to put two standard reinsurance contracts together in a way that basically says that you, the reinsurer, are going to manage my assets for a spread, for a fixed credit rate. The company generally gets a ceding commission upfront, so it helps to manage capital. The advantages to this are that somebody else does the work of the hedging, it's fast implementation, it's scalable and you get capital relief in ways you can't get from the other strategies. One of the things you have to deal with is having various structures and dealing with the rating of the company to make sure that you're protected from the credit risk standpoint, because suddenly you're giving your assets to another company. You might use funds withheld or trust accounts or things like that.

Let me wrap up. The bad news is that interest rates are low and not so low, but not so high that we're out of the woods. By no means can we say with great confidence that they're on their way up or they can't sharply come down, because we have a case history where they did. They could easily get much worse. We're actuaries for a company with significant LTC liabilities on the books. This is a responsibility this community has—to protect the policyholders and the company from solvency risks that are real. Of course, we're forced to do it whenever we have to do cash-flow

testing and look at the down scenarios.

The good news about some of the things that I discussed (and just as important, what will follow), is that there are remedies available for prudent management of risk. The really good news is that the more you manage the risk, the better your returns are going to look, at least on a level scenario. Your returns are going to look better on a level scenario, and the level scenario will be replicated on the down-interest-rate scenario and the up-interest-rate scenario. You have stability at a higher level than you can attain assuming the financial markets will stay in the same place.

**MR. LARRY H. RUBIN:** How many of you know of an insurance company that only invests in risk-free assets? How many of you know of companies that typically would try to invest in assets that were a little longer than their liability to pick up the positive slope of the yield curve? It looks like only one person. I think that's just about what every company does.

This goes back to a discussion that I was having when I joined PwC a couple months ago with some individuals who were involved in enterprise risk management for banks. They wanted to take what they had done for banks and bring it over to the insurance industry. They were wondering why it was that what was so successful in the banks isn't working in the insurance industry. I had to explain to them that they had to understand how insurance companies make money. Banks make money by trading their position. They don't hold on to risk—no matter what the value of holding the position, they still try to get rid of it and make the trade in gain. That's what banks do, and the enterprise risk management for banks was built around that approach.

Insurance companies don't make money that way. Insurance companies make money by recognizing that markets are risk-averse. Individuals are risk-averse; that's why they buy insurance. They're willing to pay more than the expected loss to get aware of that risk aversion. Also, capital markets are risk-averse. The credit spread on bonds typically is greater than the expected loss. A bank would look at the credit spread on a bond as the market's perception of expected loss. The insurance company looks at that as saying, "There's a risk aversion there. I can get some gain by playing that." We're going to see why that's important in this presentation. In many ways, by not hedging your interest rate risk on LTC, you're going against the fundamental philosophy of how insurance companies make money.

Suppose you could make a decision today to lock in a rate such that, based on a 100-year history, the rate you lock in today over 90 percent of the time would be significantly greater than you could get by waiting. How many do you think would do that? It looks like four. If I told you today that you could lock in a rate close to 7 percent, do you think you'd do it? Let's go into that. Let's look at our typical LTC policy that was priced around 1990. We're going to focus on the interest rate

assumption of 7 percent, which was probably common or probably pretty low around that time for pricing LTC. Probably everyone has business on their books that was originally written at 7 percent, maybe even as short as two years ago.

I remember when I was taking my exams in the 1980s. On the fellowship exams you'd have these long questions where you'd be asked what the pricing considerations were for product ABC. Anyone who took the exams in the 1980s probably remembers the same thing. Invariably every question concerned one of the pricing parameters—interest rate. You had to answer that "for interest rate, a conservative long-term rate should be used," but there was never any guidance on what a conservative long-term rate was. Back in the 1990s, just about everybody considered 7 percent a conservative long-term rate. In fact, at the same time, the state of New Jersey would not approve an LTC rate filing if the interest rate was computed at anything lower than 7 percent.

Chart 4 shows our typical cash flow of an LTC policy. You're receiving your premiums for 18 years. Each of the years you need to reinvest it at whatever the prevailing rate is at the time in order to pay the benefits to years 20 and out. If we take a look at our 7 percent rate, we can see what happens. In today's 5.5 percent rate environment, the difference between the black line and the blue line represents the cumulative loss on that policy.

Let's try to develop a little guidance on what long-term rates should be. Chart 5 is a growth of real gross domestic product (GDP) by decade going back to the 1970s. In the 1970s, it was 3.2 percent. In the 1980s, it was 3.2 percent, and in the 1990s, it was 3.2 percent. Does anyone want to give a prediction of what it will probably be in the year 2000? In reality, long-term interest rates cannot be divorced from the real economy. The best estimate where long-term rates are going to be is real GDP plus the Consumer Price Index (CPI). One reason you've seen rates come down over the last 30 years is CPI has come down. If we take our 3.2 percent real GDP growth and our 1.5 percent to 2 percent inflation expectations going forward (and even that's high based on where Treasury inflation-protected securities (TIPS) are trading today), you're looking at long-term Treasury rates probably in the neighborhood of 5 percent. That's a little higher than where we are today, but not significantly higher. Let's take a look at what that does to our product. If you price your product at the 7 percent rate and earn the 6 percent rate, you're short by 13 percent in premium. If I can hedge 7 percent today, I can increase my embedded value by 13 percent of the present value of my cumulative premiums. It should be a sizable increase in the embedded value of an insurance company.

I'm going to go through another way to look at rates. How many of you know what forward rates are? If an investor buys a two-year instrument yielding  $x$ , we all know that at the end of two years, the amount of money he has can be thought of as  $(1+x)^2$ . Call that amount,  $A_1$ . Let's take a second investor who buys a one-year instrument yielding  $y$ , and he expects to reinvest at the end of year one at the rate  $z$ . The accumulation for investor two is simply  $(1+y)(1+z)$ . Call that amount,  $A_2$ .

The one-year rate forward is the value of  $z$  such as  $A_1$  equals  $A_2$ , and this is at three years, four years forward. There are a lot of techniques that allow you today to invest at  $z$  and earn  $z$ .

The second thing is that  $z$  historically overstates where rates are going. Chart 6 shows the difference between the five-year constant maturity swap rate, current versus what was predicted five years ago, as well as a 10-year rate versus what was predicted 10 years ago going back to 1998. Except for a small period around 2000, the actual rate has been significantly lower than the rate predicted by the forwards. You can take this chart going back to the year '00 using Treasury rates before the swap curve and you'd see the same pattern. Forward rates historically overpredict where rates are going. I recently co-authored a paper in the *Journal of Risk Finance* that gives the reason for this overprediction, which is the same reason that credit spreads overpredict the falls. The market is risk-averse. They're going to pay a lot to get out of this risk of not knowing where rates are. From the insurance company that trades on risk aversion, if I can lock in those forward rates, that's consistent with everything I do as an insurance company. It's how I make money, so not locking in is contrary to everything an insurance company does.

Let's take a look at what companies do today with LTC when rates are falling and how they deal with lower rates. The most prevalent strategy I saw three years ago. I still think it's the most prevalent strategy, and it's probably in most actuarial opinions and memorandums. They'll make the assumption that I'll file for a rate increase, notwithstanding the fact that under the current rate stabilization law, you can't assume a rate greater than the valuation rate. This is completely off the table, but there seems to be a disconnect between what the pricing actuaries are doing and what the valuation actuaries are assuming.

The second strategy is Richard's SPIA example. I'm just going to assume my risks offset. I have this huge deferred annuity block. I have this huge LTC block. I'm going to make this huge gain if rates fall on my annuity block. It's going to offset my risk of falling rates on LTC. This would be fine if you could get that deferred annuity rate gain for 30 years, which usually does not work.

I'm going to go into some of the things companies do today. You could look at an LTC product as a series of calls given to the policyholder by the insured. You have the right to collect a premium from me, and if I pay you the premium, you have to give me a bond yielding whatever rate is embedded in that product. If I don't give you my premium, you get to keep my reserve. If you look at an insurance product as an exchange of options, or as a derivative granted from the policyholder to the insurance company, the insurance company can use that derivative to create an offsetting derivative and protect itself.

We'll use this example. We're going to assume insurance carries \$100 million in LTC premium coming due in three years. We're going to do a three-year forward interest rate swap with \$100 million notional. The insurance company is going to

receive a fixed rate and pay a floating rate. This goes back a few years, but in October 2002, this rate would have been 5.89 percent. I believe this is actually significantly higher today.

In this case, three years from now I'm going to get this cash. I'm going to buy a London Interbank Offered Rate (LIBOR) floating asset. I'm going to pay LIBOR over to my swap counterparty and receive 5.89 percent. The second thing I can do here is buy a longer-term asset which has credit spread and either swap it to fixed or buy a long-term asset as a credit spread, in which case I'll receive the LIBOR forward rate plus the credit spread, in this case 5.89 percent plus whatever credit spread exists in the market at the time. In fact, if you did this strategy today, you'd be locking in somewhere in the neighborhood, with AAA assets, of 6.5 percent.

In this example, the company is going to enter into a swap where they're going to receive LIBOR and then pay it to counterparty II. They're going to receive a swap forward rate and pay the swap current rate. In the end I receive the swap current rate plus the credit spread. I pay it over, and what I'm left with is the 5.89 percent being the swap forward plus the credit spread.

The other strategy that we've seen companies look at is securitization. We will take their net cash flow that they expect to receive over the next 10 years, bundle it, sell it to the capital markets and receive a sum of money, which can then be invested at today's rates. Companies have investigated this and have found a number of problems. While it does reduce their risk and increase their earnings, it tends to increase the leverage on the company. It's very inflexible in handling deviations in persistency, mortality and morbidity, which is something we've seen a lot of in LTC. You can't get a true sale treatment, so it shows up as debt on your balance sheet.

The concept of securitization, and what you're trying to achieve, can lead us to another strategy that we've seen a lot of companies execute in the last couple of years. This has proved highly effective, and this is called structured liability. If you take a look at our cash-flow pattern here (Chart 7), we have a positive cash flow that needs to reinvest to fund the benefits later. If I could find a way to borrow that cash flow today, I get two advantages. One is that I'm borrowing short and investing long. The second is that I'm investing everything at today's rates so I know what yield I'm getting. For the last couple of years, a very interesting ability has come up for insurance companies to borrow without it showing as borrowing on the balance sheet—the use of GICs. Going back here, I could write a one-year, two-year or a whole series of GICs sold into the market at exactly equal to my LTC cash flow. The concept is that I'm not going to use the proceeds or the assets I use from the GIC sale to pay off the GICs. I'm going to use my LTC cash flow to pay off the GICs. I can then take my GIC cash flow and invest it as if it were LTC, to fund an LTC benefit payment. All my money is received up front. The negatives are the complete inverse of the positives. I create a liability that's a complete mirror image of my LTC liability. In this case, my combined cash flow now shows most of the

cash being received up front, where it's now reinvested to pay out benefits 20 years from now.

Chart 8 shows what happens. Here we show four different lines. The blue line was our original pricing line. While the purple line on the bottom shows what happens in today's interest rate environment of about 5 percent, the black line is 5.5 percent where we may be pricing. If we were to do the GIC strategy—here we use it just for 10 years of cash flows—we end up going to the yellow line. Up until the point where our GICs mature, we actually exceed the 7 percent pricing line. We actually net earnings greater than 7 percent on our product, and by year 10, something else needs to be done, either the swap charge or something else to lock in beyond that.

The GIC strategy has a number of advantages. One is, first and foremost, you're reducing your risk of declining rates. You're taking advantage of the positive slope of the yield curve, something insurance companies do all the time, and you may be doubling your earnings on your block of business. You increase your assets under management. Richard mentioned the problems: FAS133, the tax problems and all the management problems of using derivatives that exist today to hedge. All those problems go away. This strategy has no derivatives in it. It gives you all the benefits of a securitization without all the negative impact of securitization. Another key advantage is since you're selling a product, you're borrowing the money and showing no leverage on your balance sheet. More important, if you look at a securitization and you don't get the premiums, or you get more premiums than you expect because you don't get your lapses, you've sold that amount into the capital markets. You don't have the money to set up your reserve. Here, if you get fewer lapses than you expect, there's a small amount you haven't hedged.

**MR. MARCO A. BRAVO:** I'm going to try to give an overview from the asset manager perspective. My day-to-day responsibilities include managing insurance company portfolios. The only work my firm does is manage insurance company assets. My goal here today is to give an overview of the asset management process from the investment and asset sides of the balance sheet.

I want to try to cover the considerations that the asset manager has to take into account when constructing the investment portfolio for a block of LTC business. I also want to look at various sectors that are available in the fixed income marketplace. Most importantly, I want to cover how you manage the risk in the portfolio. At the end, I'm going to give a brief economic commentary. My crystal ball is as fuzzy as everyone else's, so I'm not going to tell you where interest rates are going. Hopefully, I can give you an idea of the current state of the economy and what that means for probability of future movement in interest rates.

Let's start with some of the considerations that the asset manager has when beginning to construct an LTC portfolio. Number one, obviously, is that there's going to be a bias for higher-yielding assets. The pricing folks will always try to put the highest assumed earned rate on the portfolio, which leads to pressure on the

investment manager to have higher-yielding assets within the portfolio. Higher yields mean the investment manager has to take higher risk or take more risk in the assets that he or she chooses. I think many companies don't look at these two issues together, but the risk that the investment manager takes in the portfolio has to be commensurate with the risk tolerance of the company. You have to have objectives that could be met given the risk constraints that are imposed on the investment manager.

You've heard the individuals before me, Richard and Larry, talk about the long-duration nature of the liability. That's going to be a consideration for the investment manager in that the assets will have to have a longer duration to better match the liabilities. That's a problem in today's marketplace because there are a limited number of assets available that give you the long duration. What usually ends up happening is that there's going to be an overweight to corporate bonds. The corporate sector is really the only sector available in the fixed-income marketplace to get the long duration that you need in the portfolio.

There is an opportunity, though, to take some liquidity risks. Because of the upfront cash flows in the early years and the negative cash flows in the later years, there is an opportunity to add some more liquidity risk in the portfolio and try to enhance the yield by increasing that risk slightly. At the end of the day, what's really important is what you earn over the investment horizon of the portfolio and the need for very stable book yield. That requires minimizing call risk to try to protect against falling interest rates and trying to manage appropriately the credit risk to reduce potential losses that could negatively impact the overall book yield over the investment horizon.

Let's begin by looking at the marketplace and where we can find yield in today's market. This presentation was written a few months ago when rates were actually nearer their historical lows. They've risen recently but are still at relatively low levels. The yield curve is very steep, meaning long-term rates are much higher than short-term rates. It's also very important to consider the spreads that you're earning on various asset classes. Corporate bonds, mortgage-backed securities and commercial mortgage-backed securities (CMBS) are at relatively tight levels versus historical averages. These are all instances that make it very difficult to get any substantial yield in the fixed income market.

As an investment manager looking at which sectors to invest in, we know we're going to have a lot of corporate bonds, but we also want to try to minimize the impact of credit risk and try to diversify. Relative value analysis plays a very important role in terms of looking at where the average spread on those sectors is versus historical averages.

Finally, there are four risks in the fixed income market that you can take as an asset manager. These are: duration risk, which is interest rate risk; credit risk, the probability of default or loss of principal; convexity risk, which is call risk; and

finally, liquidity risk, which is really measured by the difference between where you buy an asset and where you can immediately sell that same asset. Those are the four risks that the investment manager can choose from to try to add incremental yield to the portfolio.

If you look at Treasury rates today, Chart 9 shows a graph of the 10- and 30-year Treasury note. You see the rates recently have risen, but nowhere near where they ended in 1994. Perhaps this is the experience in 1994 when the Federal Reserve began to raise rates, and interest rates moved up very aggressively. There are some people out there that feel we are now in that same early stage of a 1994 scenario, where the Federal Reserve is going to start raising rates and interest rates should begin to move higher. There are reasons why we may not be in exactly that same type of scenario, given where the labor market is and given where inflation is running. We may not see an exact same repeat of 1994. After hitting lows in June 2003, you see the 10-year almost hit 3 percent and the 30-year Treasury note almost touched on 4 percent. Rates have risen slightly from those low points in June 2003 and have started their move higher, but on a historical basis they're at pretty low levels. The yield curve is very steep. Yield curve is really measured by, again, the difference between long-term and short-term interest rates. The investment manager that is looking for long-term assets or long-duration assets to take advantage of the steep yield curve can go out in maturity to earn incremental spread and incremental yield on the assets.

Spreads across most sectors are very tight. When I say "tight," I mean that they are very narrow versus historical averages. There isn't a sector in the fixed income marketplace that I can say is very attractive from a spread basis. Chart 10 shows spreads in the corporate sector looking at various industries. The vertical lines represent the 12-month spread, and the horizontal line represents where the spread is currently. You can see that spreads on various industries versus a recent 12-month history are at the tightest levels they've been. That's very difficult for an investment manager trying to find value in the fixed income marketplace. What the market may be telling us is that they've already priced in an economic recovery in corporate bonds. Spreads began to tighten tremendously in 2003 in anticipation of this recovery that we're currently in. When adding assets to the portfolio, the manager has to make sure that, given where the spread level is, he is being compensated for that extra risk that he's adding to the portfolio.

I used the Lehman index just to give a snapshot of the portfolio. If we look at the long corporate index, in which an LTC portfolio will have most of the assets invested, this part of the index has an average maturity of about 24 years and the yield is currently about 6.7 percent. These are all investment grade-rated securities, with the majority of the long corporate bonds in BBB-rated average quality.

If you look at how sectors have performed so far this year in 2004, Chart 11 looks at the relative performance of different asset classes versus Treasury notes. So far

this year, the asset-backed securities (ABS) has been the best-performing sector. The worst-performing sector is mortgages (minus 23 basis points). More recently, given the volatility in interest rates, mortgages have started to underperform. If you look at 2003, the best-performing sector was corporate bonds, outperforming Treasury notes by over 527 basis points. The message we try to bring across is that you want to try to diversify the portfolio as best you can. As an investment manager, the reason why we diversify is really because of ignorance. We don't know which is going to be the best-performing sector next year, and, more importantly, we don't know which is going to be the worst-performing sector. What we hope to do is not have a lot of the exposure in the worst-performing sector, but try to spread that risk around the sectors as best we can. Unfortunately, as I mentioned earlier, that's difficult in an LTC-type portfolio because of the long-duration requirements.

Let's look at some of the risk constraints. As a fixed income manager, we're really like insurance companies. We're risk managers. We look at individual securities, we determine what the risk is that we're taking when we buy that security and then we make a determination whether we are being compensated for taking on that risk or whether that security is properly priced. When determining the appropriate risk constraints, we need to take into account the companies' financials, their tolerance for risk and obviously, most importantly, the liability characteristics. When we look at the fixed income risks, we know duration is going to be very long to try to match the liabilities. Actuarial input is very important at this stage. Then there is credit quality. We're going to have some exposure to lower-rated credits. The ability to go into sub-investment grade or high-yield credit depends on the company's ability to tolerate losses and loss of surplus.

For convexity, which measures call risk, it's very important to maintain a positive convex portfolio or a portfolio that has very little call risk to protect the portfolio in an instance where interest rates fall and you're starting to get more prepayments back and being forced to reinvest those prepayments at lower interest rates. An LTC portfolio and a requirement for a stable book yield usually result in a constraint of more positive convexity versus negative convexity.

Liquidity, as I mentioned earlier, is not a significant constraint to an investment manager. Here there is an opportunity to add assets where there is more liquidity risk in order to increase the incremental yield from the portfolio. You start looking at the various sectors that are available to an investment manager. When choosing the appropriate sectors, let the risk constraints, which we just developed in the previous stage, be the primary guide and use relative value analysis to select sectors as well.

Given the long duration, the positive convexity and the low liquidity requirement for an LTC portfolio, the following sectors, I think, should be emphasized. Number one is corporate bonds, obviously due to the long-duration requirement. But away from corporate bonds, taxable municipal securities are an excellent way to diversify the

portfolio and significantly reduce the credit and the event risk that is inherent in corporate bonds. If we can buy mortgage-backed securities, we should buy call-protected classes such as PAC CMOs, Z bonds or accrual bonds. Mortgage-backed securities do have call risks, so our ability to invest in mortgages is going to be limited. The added requirement for duration requires the investment manager to find the longer-duration securities and then in addition to that, to look for the better call-protected.

To the extent that the portfolio can have ABS and CMBS securities, these securities from a credit-volatility standpoint have historically performed much better than corporate bonds. It's an excellent way to reduce the credit volatility that you're going to have in the portfolio due to the large corporate exposure. Then finally, the ability to take more liquidity risk does offer the portfolio the advantage of investing in private placement securities for an incremental yield pick-up.

The portfolio will have a large exposure to corporate bonds and, therefore, have a large exposure to credit risk or negative event risk. The best way to manage that credit risk is to diversify by issuer to minimize the potential loss. Increasing the diversification among the issuers that you have in the portfolio significantly spreads that credit risk across the corporate sector and reduces the volatility. The investment management team needs to have a sell discipline and tools for proper credit management. This is very important. We saw how important this was in 2000 and 2001, when default rates were at record highs and you had A-rated companies defaulting in a matter of months. The days of reading S&P and Moody's reports and then acting on those are gone, because the market by that time has already priced in the potential downgrade or the negative credits, and solely relying on the rating agencies doesn't give the investment manager time to react.

At Asset Allocation, we have a team of research analysts that cover the individual industries, but in addition to that we have an independent third-party credit research firm that we have a consulting relationship with to help in the credit management of our portfolio. The key is to try to be more proactive in credit management, to get out of securities that possibly could be deteriorating credit or, vice versa, to get into securities where the fundamentals are improving. It's very important for LTC because the majority of your portfolio is going to be in corporate bonds. Because of that, the ability to diversify into non-corporate sectors as much as possible is the key to reducing credit and event risk.

The recommendation to try to manage credit risk is: as you go down in credit, reduce your tolerance or your maximum exposure. What I mean by that is if the investment portfolio has a 1 percent guideline for A-rated securities, if you buy BBB-rated securities, you reduce that maximum exposure to possibly 0.5 percent. As you go down in credit quality, you reduce the maximum limit that can be invested given that rating. Utilize non-corporate bonds as much as possible: mortgage-backed securities (again, the longer duration, call-protected securities), structured products such as ABS and CMBS, and taxable municipal bonds in order

to reduce credit risk.

Here's an example of the potential impact of credit development in the portfolio. Here's a media company security, Liberty Media, which has a coupon of 8.25 and matures February 2030. Liberty Media is rated Baa3/BBB-, which is one notch above junk or below investment grade, so it's still investment grade, but at the lower end. On June 18, 2003, this bond was trading at a spread of 206 basis points over Treasuries, which resulted in a price of \$122 and a yield of 6.45 percent. At that time, there wasn't much concern about the credit fundamentals. The company, as far as its actions, was very bond-friendly. Over the next two months, news started coming out regarding Liberty Media that caused the bond market to get concerned. They were talking about adding leverage to the balance sheet, which possibly could reduce in a credit downgrade. During those two months, which was kind of the worst-case scenario, interest rates rose and the spread on this bond increased from 200 basis points to 250 basis points. On August 19, this bond was trading at a dollar price of \$105, almost 18 points below where it was trading on June 18. At this point, the investment manager has to make a decision: Do I take an 18-point loss on this security and go into a better fundamental security because I can't tolerate a downgrade from here, or do I hold and see what happens? This is very important in managing credit risk, especially with long-duration assets, because the negative effect is increased because of the interest rate sensitivity. Luckily for those who held Liberty Media, things improved, and as of April 27, the spread actually narrowed to about 165, better than where it was trading back in June. The dollar price is still lower because interest rates are higher than they were back on June 18, 2003.

I've touched upon diversifying into taxable municipal bonds as a way to reduce your credit risk. I have an example of a long Wheaton College, Ill., taxable municipal bond that's rated AA3 versus Apache Corp., which is A3/A-. The taxable municipal bond, which is a higher credit quality, was trading at about 80 basis points over the 30-year Treasury note versus the corporate security, which was trading at 75. Occasionally, the taxable municipal market isn't a market where there's a lot of issuance, but whenever there is new issuance and where the spreads are equivalent or sometimes even higher than similarly rated corporate bonds, we always take advantage of that and move into taxable municipals to reduce the corporate exposure and corporate credit risk.

ABS and CMBS securities, as I mentioned, are an excellent way to reduce credit risk. Chart 12 puts forth the data behind this. What you're looking at here is a five-year transition matrix that shows how many of the securities retain their rating during that five-year period. The corporate column is a five-year period ending December 2002 for corporate bonds that had A rating at the beginning of this period. So, 6.4 percent of those bonds were upgraded during the five-year period, 37 percent were downgraded and 56 percent retained their A rating during that five-year period. If you look at the ABS and CMBS sector, in ABS over 91 percent retained their rating and only 3 percent were downgraded. In the CMBS market, 17

percent of those securities that were A rated at the beginning of the five-year period actually were upgraded and 74 percent retained their rating. Historically, adding ABS and CMBS securities in your portfolio significantly reduces the credit volatility that is inherent in the corporate market. Unfortunately, it is difficult to get long-duration assets in these two sectors, and that's why it usually represents a very small part of an LTC portfolio.

When buying mortgage-backed securities, Richard touched upon the call risk. When we're buying LTC assets, and we're buying mortgage-backed securities, we always make a point of trying to buy the best call-protected type of securities. Chart 13 shows an example of a PAC CMO, which is the most call-protected type of CMO in the marketplace, versus a support CMO, which has very little call protection. The blue line represents the average life of the PAC CMO, which you see is much more stable than the red line at various interest rate scenarios. Now, at the time you buy the security, the support bond has a higher yield. It should have a higher yield because it needs to compensate you for that extra volatility, and you're only going to earn that higher yield if interest rates stay the same. If interest rates move higher or lower, chances are you're going to end up earning a lower yield than had you purchased a PAC bond originally. It's very important when you're buying callable securities.

Finally, I think private placements are an excellent asset class for an LTC portfolio because of the lower liquidity requirement. They provide an opportunity to pick up additional yield. Private placements are regular corporate bonds that come to market in a private-placement format versus a public registration, and they usually come to market with protective covenants. They do offer more diversification. Typically, private placement issuers tend not to issue as much in a public market, so you get the ability to add names that you normally wouldn't be able to add in the public market. Recently the spread on privates has been very narrow. Some are in the 15 to 20 basis points over public, which in my opinion does not compensate you for the higher liquidity risk. But as spreads of 50 or 75 basis points over similarly rated public bonds, they definitely offer an opportunity for the investment manager to add higher-yielding assets at a risk that is more than tolerable because of the lower liquidity requirement in the early years.

I'd like to move from the portfolio construction and give a quick outlook on the economy. It feels like we are in an economic recovery, and GDP is expected this year to come in between 4 and 4.5 percent. You saw the chart that showed average GDP around 3.2 percent. I can say the consensus is calling for GDP to fall next year below 4 percent and come in at 3.5 to 4 percent as we get closer to the long-run historical average. Monetary policy, which is controlled by the Federal Reserve, and fiscal policy have been and continue to be very stimulative. You have the Federal Reserve funds rate at 45-year lows, and you have state and federal governments running budget deficits, which is very stimulative to the economy.

There's a lot of talk in the press that the Federal Reserve may start raising rates

this year. The Federal Reserve really has influence on short-term rates—two-, three- and five-year rates—whereas the inflation expectations and the demand and supply for long-term assets have more of an influence on long-term rates, which is where the LTC portfolio will usually be invested. With the Federal Reserve raising rates, we would expect to have more of an impact on short-term rates versus 10- and 30-year Treasury notes. Because of that, we would expect the yield curve, which is very steep right now, to start to flatten as the Federal Reserve begins to raise interest rates. For the 1994 experience, I looked at the two-year Treasury note, the five-year, 10-year and 30-year notes. The two-year note increased over 300 basis points in 1994 as the Federal Reserve began to raise rates aggressively. The 30-year note did increase, but not to the same extent as the shorter interest rates did because of what I mentioned earlier—the Federal Reserve influences more on short-term versus long-term interest rates. The yield curve is flattening over this period.

What's the outlook for Federal Reserve policy? The labor market seems to be improving, and although we've had a slight uptick in inflation, the inflation rate continues to be relatively benign. We've seen commodity prices move higher. Oil prices are moving higher, but that's really not moving into core consumer prices yet. Those are the two main drivers of Fed policy. Up until last month, really, we've had a weak labor market and very little inflation, and that's why only recently has the market begun to anticipate the Fed raising interest rates. I don't think the Fed wants to raise rates too quickly. They've stated a number of times that they want more moderate removal of the policy that is currently in place in order to not spook the markets and risk choking off this recovery that we're in. At the time this presentation was written, the futures market was predicting a 75 basis points increase in Fed funds. Right now it's predicting about a 1 percent increase, so from 1 percent to 2 percent by the end of this year. With the federal funds rate, we would expect it, if the market is correct, to get up to about a 2 percent level.

The labor market, although still very weak, has shown signs of improvement over the last couple of months with non-farm payrolls coming in much higher than expected. I think one of the reasons it has lagged so much in this recovery is the productivity that companies have. They're able to do more with fewer workers and not until they're confident that this recovery that we're in is sustainable will they start to add labor to their force. Historically if you look at past recessions, the labor market has always been the last sector of the economy to improve.

Should we be concerned about inflation? I don't think so. We've seen a recent spike in core prices, but companies are able to absorb higher costs due to the efficiency that they're gaining from higher productivity. We're living in a much more global economy right now that reduces the pricing power that companies have to raise prices, although there have been certain market indicators, such as gold, commodity prices and the U.S. dollar, that might be suggesting a future rise in inflation. One of the reasons why I believe that inflation is not a problem at this time is there's a lot of excess capacity. If you look at two industries that come to

mind, the auto industry and the airline industry, there's a lot of capacity in those two industries. Companies operating within those industries have a hard time increasing prices and keeping them there for a sustained period of time because of all the excess capacity. Telecommunications is another industry where there's a lot of excess capacity.

To summarize, we're in a very difficult environment for a portfolio that has a long-duration, high-yield objective such as LTC. We have very low interest rates. We have very tight spreads. We also have a limited availability of long-duration assets. Interest rates feel like they're rising. They probably could continue this rise, although rates could remain low. One of the unknowns that is starting to get priced back in is an increase in geopolitical risk that's coming out of Iraq. If something were to happen there that increases geopolitical risk and causes the markets to become more risk-averse, market participants will head toward the quality and safety of U.S. Treasury notes driving their yields lower. Unless inflation begins to increase, we would expect that most of the rise in interest rates will occur in the short end and not in the long end, such as 10- and 30-year Treasury notes.

I think someone mentioned this earlier, but don't let the probability of rising interest rates influence your duration decisions. If you have a long-duration liability, you have to go out and purchase long-duration assets, even though it feels like interest rates are going to be higher a year from now versus where they are today. Considering the company's overall risk tolerance is very important in determining the appropriate risk constraints. Liability characteristics play a very important role, and objectives for the portfolio have to be reasonable given what the constraints are on the investment manager. It's very important for the product-pricing people to be involved in this stage, so that they know the achievable yield in the fixed income market and the risk constraints that are being imposed on the investment manager.

When taking risk to enhance the portfolio yield, there is a cost of taking risk. When you're buying credit-sensitive investments, there's a reason why there are an x percentage of BBB-rated securities that default every year. There is a risk to buying securities. That cost has to be factored in when determining what the assumed earned rate on the portfolio is going to be. It's wrong to look at a security that's BBB-rated trading at a 6 percent yield, totally disregard the risk you're taking and assume that's the yield you're going to earn. You have to factor in the cost of the risk you're taking to come up with a more conservative earned rate on the portfolio. It's important to not focus solely on yield, but to take into account the risks and to ensure that the risks are commensurate with the company's risk tolerance. Diversification is very important to maintaining a stable book yield. Diversifying by sector and by issuer will reduce your potential volatility, because in the end it's really what you've earned over the investment horizon that matters most in terms of profitability.

**MR. NEWTON:** As I said before, we've gone through a similar presentation over

the last three years. We actually were rolling dice and going through stochastic scenarios of interest rates, so it was a lot of fun. But the character of today's presentation was a little different because in the beginning when we were introducing this topic, we were much heavier on scare tactics. Today we went short on scare tactics and long on possible solutions, so there was a lot in here that you could take home and start to think about in terms of actual solutions.

I don't remember where this quote came from a long time ago, but it's something I keep reminding my manager about. "There are no solutions, only tradeoffs." You don't want to lull yourself into a position of understanding this risk, understanding the problem and then taking steps to mitigate the risk, only to find out that you've accepted some other risks on its behalf, instead of the risk. So instead of having interest rate risk, if you use swaps for example, what you're really doing is replacing an interest rate risk with a counterparty risk. When you're implementing the strategies, it's good to remind your management and yourself that there are tradeoffs in risks and you need to understand what they all are as you go along.

Some of you probably are more aware of this problem, more practiced in it or maybe you deal with it every day in your work, and so you could all understand this in one session. Some of us are maybe more new to this, so let me just leave you with some conclusions. First of all, for pricing actuaries and valuation actuaries, although this is a little more difficult to conceive, don't think of LTC as a pricing exercise. Think of LTC as a swap. You're trading a set of fixed cash flows, which are premiums, for a set of variable ones, which are all the benefits and expenses and everything else that goes with that. You're accepting something that's fixed and you're trading something that's variable. One of the variables that we've talked about today is interest rates. Interest rates have shown a tremendous amount of volatility over time. When you consider that an LTC obligation is not a five-year obligation (it's more like 30, 40 or 50 years), any of those graphs that Richard put up there apply and any one of them could apply to LTC over the next 40 years.

There are many strategies, some of which we've introduced to you today, for reducing the effects of the volatility that you're accepting on behalf of the premiums that you take in. Fortunately, the markets help us, because markets, people and companies are essentially risk-averse. They're willing to pay to transfer that risk to somebody else. You can reduce the risk. You can deploy one or more of these strategies and reduce the interest rate risk on your LTC account. Because the markets are risk-averse, you can reduce your risk, and you can get paid for it. That's the good news and the take-away from today's session.

**FROM THE FLOOR:** Richard, I actually have one for you and maybe Larry. I've experienced some internal difficulties over time, in talking with companies and working in my own company. I wonder if you could expand a little bit more on that.

**MR. PITBLADDO:** I can speak from a very internal perspective and Larry possibly from the perspective of trying to work with other companies in getting them to

move. My first experience was implementing forward start interest rate swaps. I've done about five billion of notional-value forward start interest rate swaps, but it did take years of dogged, persistent internal politicking in order to get that done: introducing the concept, making everybody aware of the risk, dealing with the issues of "don't we have other offsetting risk positions that will cancel it out" and demonstrating that yes, to a certain extent they do, but they don't protect against other financial market shifts. Then, once you get the senior management saying they ought to do this, there's an enormous amount of execution involved. You have to do it, and it has to come off perfectly. We can't have any GAAP income volatility because of this. We can't have tax things messed up. What is the impact on statutory capital? You have to go through all sorts of regulatory accounting treatment, and it has taken a long time to get done.

When I worked with Larry, I ran GE out of swap counterparty capacity—nobody would trade with us any more because we had too much position. I worked with Larry to create the complementary structured liabilities to LTC. There was additional internal work we had to do. Since it was a GIC liability, we had to deal with the GIC product line. Since we were presenting something that was going to add value to the company, they wanted their piece of the action, so there were inter-product coordination efforts. It was like two little fiefdoms within the company trying to battle over who gets the share of an increased pie. We had to deal with that and do a lot of deal-making inside the company. But all these things were extraordinarily successful in terms of the results for the company. Initial swaps were locking in interest rates at 8 percent. They're on the books now at 8 percent, rolling through new investments, the swap overlays enhancing their return up to that point. The structured complimentary liability was just as successful in terms of the outcome, so it was worth all these efforts.

In the previous company that Mark and I worked at, we weren't so successful in getting to execution, but we left a legacy of proselytizing that got them moving and executing. That's just some of the color. I have to tell you that it's not going to come from the investment side of the company because they have no clue what the risk is. It has to come from the liability side, and then you get some not-invented-here syndrome, because your own internal investment managers just don't like the idea that a liability guy is coming up with an idea of how to invest the assets. You get some resistance there. Many companies have overcome these obstacles. The biggest and best companies are doing it and continue to do it going forward and are happy with the results.

**MR. RUBIN:** One of the biggest surprises I came across when I started consulting in this area in my former position was the fact that the rating agencies tell companies they should be doing this. Company managements know they should be doing this. The line managers know they should be doing this, but they can't get it through the process. Usually there has been an internal fight as to now that you've created this huge value, who owns it?

Chart 1

Falling Rates

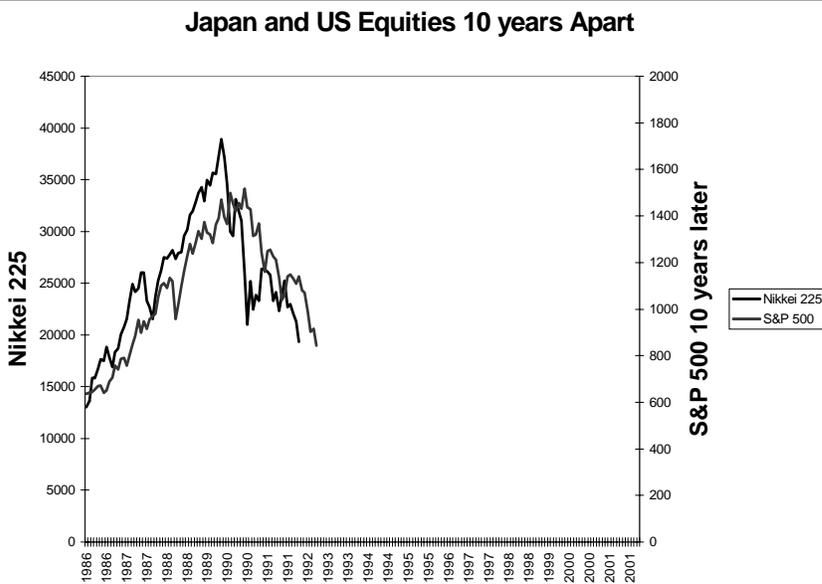


10 Year Treasuries Below Statutory Interest Rate

Richard Pitbladdo ● May 20, 2004

Chart 2

Lessons from Japan



Due for a Rebound?

Richard Pitbladdo ● May 20, 2004

Chart 3

Lessons from Japan

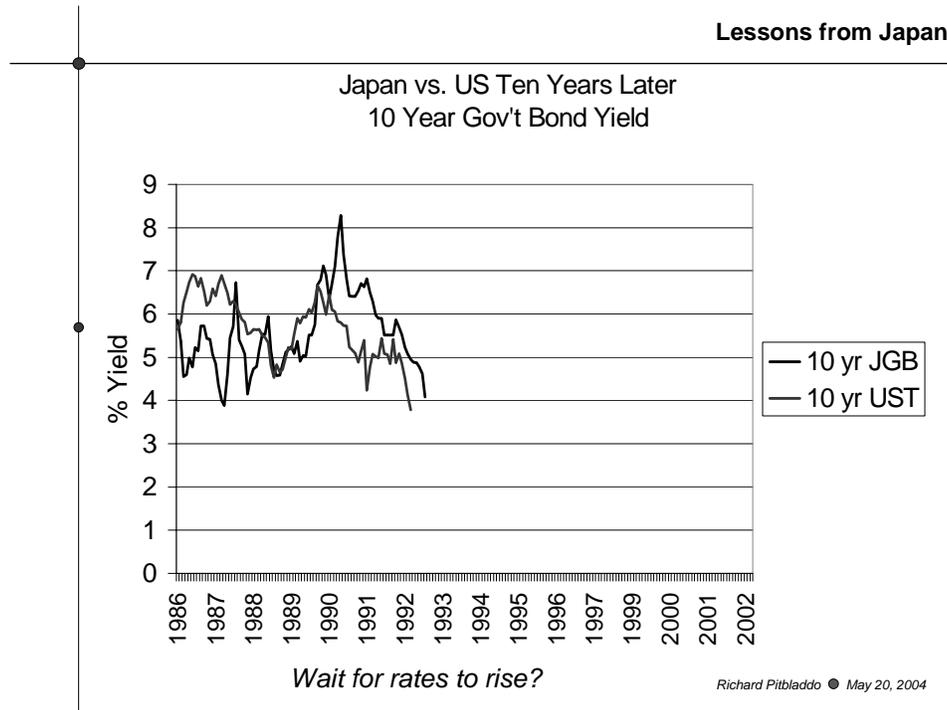


Chart 4

The following graph shows net premium plus coupon income less benefit cash flows over the first 25 years of the policy.

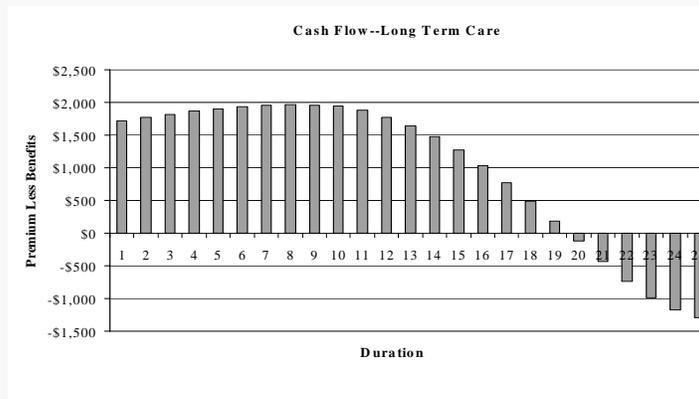
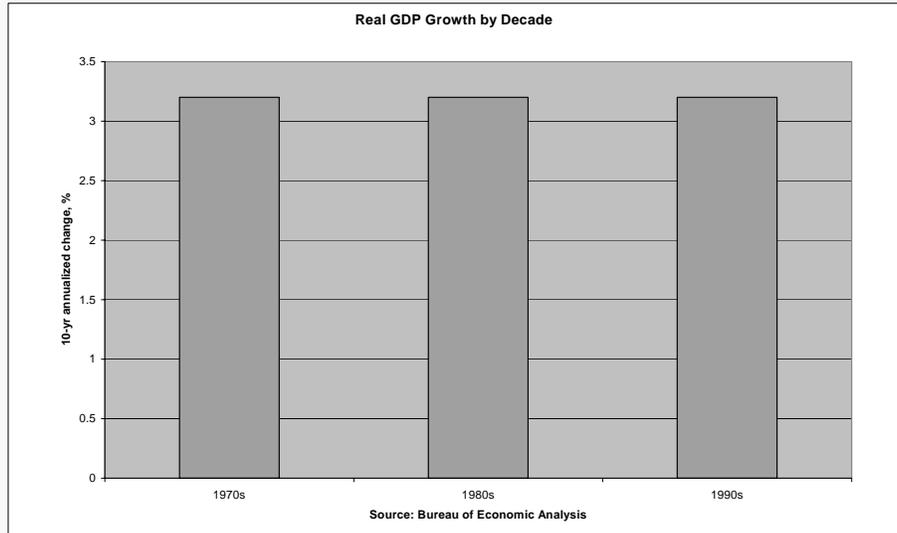


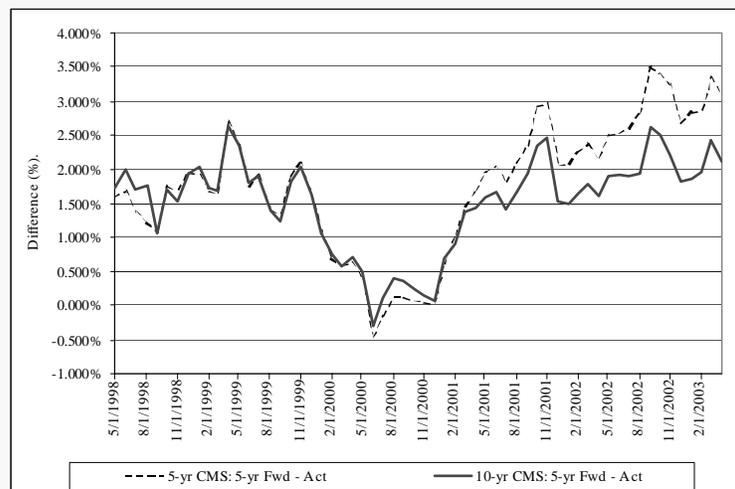
Chart 5



5

Chart 6

Forward Rates Usually Over Estimate Actual Future Rates



9

Chart 7

### Structured Liability

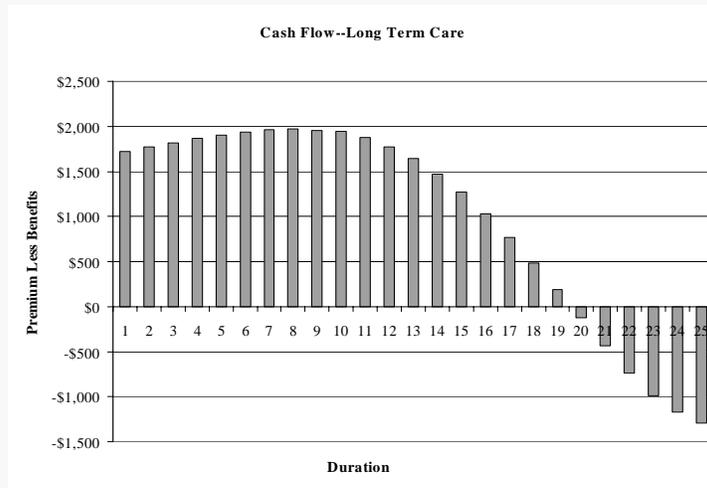


Chart 8

The following chart shows the benefits of the strategy by comparing asset growth with and without the strategy under both the level interest rate scenario and the declining interest rate scenario.

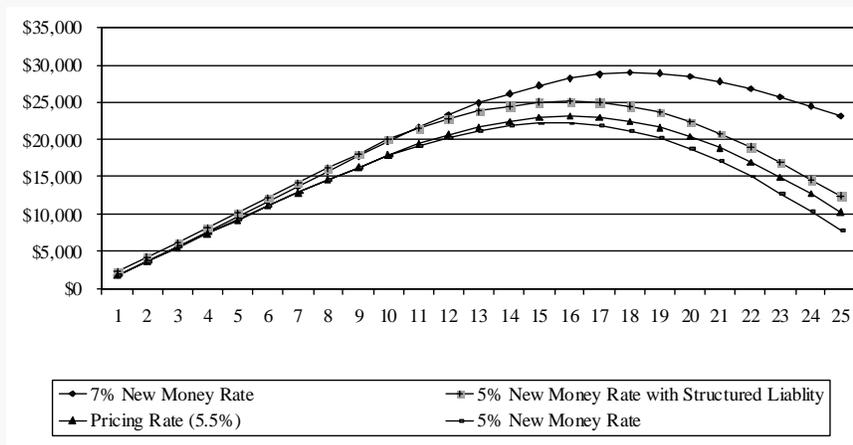
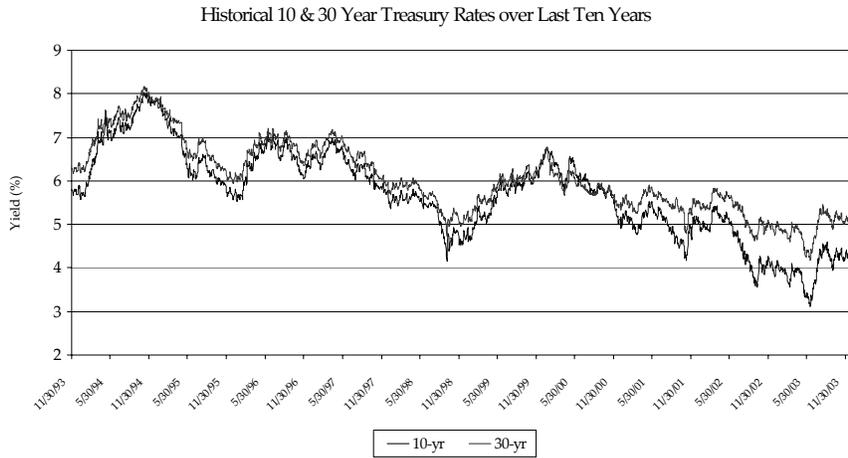


Chart 9

### Treasury rates are low!

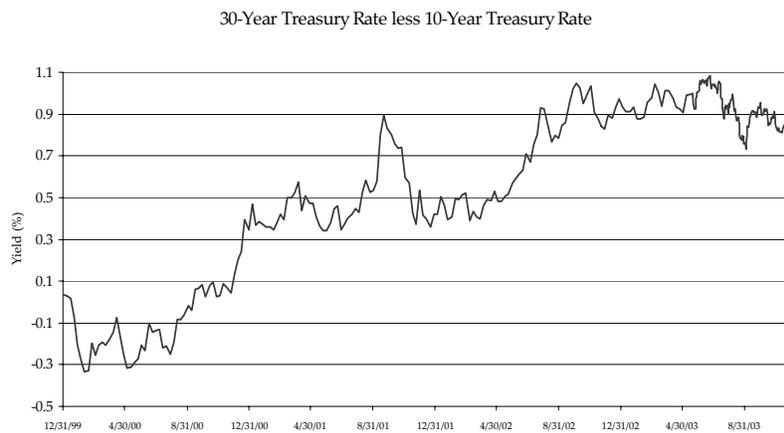


Source: Bloomberg

7

Chart 10

### Yield Curve is Steep



Source: Bloomberg

8

Chart 11

**Excess Returns by Sector (bps)**

data as of 12/31/03

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agency	41	59	23	53	-16	59	25	52	-49	41	-13	73	96	27
MBS	124	13	-111	-104	93	-49	83	130	-90	113	-77	-75	173	11
CMBS								27	-192	87	-41	131	210	201
ABS			77	125	53	48	74	-13	-88	137	43	139	-16	181
Credit	-189	268	104	91	53	136	125	-30	-238	170	-463	277	-187	527

Source: Lehman Aggregate Index Returns

Excess Return is the curve-adjusted return relative to a term structure-matched position in Treasuries.

Chart 12

**Reducing Credit Volatility with Structured Products**

Structured products have exhibited significant ratings stability. Attractive yields and lack of credit volatility has led to high Sharpe ratios (return per unit of risk).

The following are the 5 year rating transition rates <sup>(1)</sup> for the 'A' rating category and Sharpe Ratios <sup>(3)</sup> as of 12/31/02:

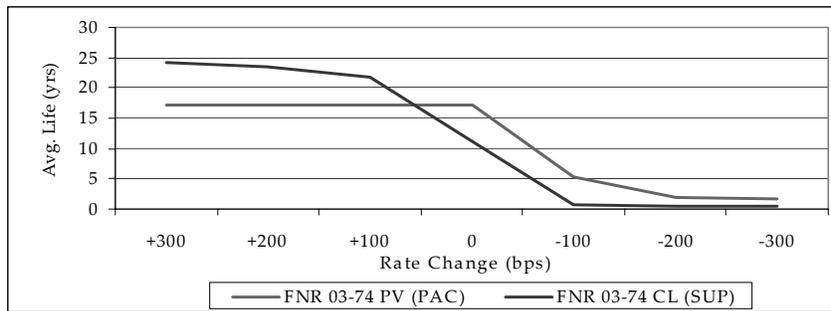
	<u>Corps</u>	<u>ABS</u>	<u>CMBS</u>	<u>MBS</u>
Upgrades	6.4%	5.5%	17.2%	36.4%
Downgrades <sup>(2)</sup>	37.2%	3.0%	8.6%	7.1%
Unchanged	56.4%	91.5%	74.1%	56.5%
Sharpe Ratios	.04	.62	.30	.14

(1) Source: Standard and Poor's  
 (2) Includes Withdrawn Ratings  
 (3) Source: Lehman Brothers. Sharpe ratios are calculated for the period 1990-2002 using excess return information from the Lehman index series.

Chart 13

**Call Risk Example – PAC vs. SUP CMO**

	FNR 2003-74 PV	FNR 2003-74 CL
CMO Class	Planned Amortization Class	Support Class
Pricing (as of 12/22/03)	\$94.78	\$94.84
Yield	5.50%	5.71%
Spread to Treasury	+100 basis points	+150 basis points
Average Life / Duration	17.14 yrs / 10.92	11.01 yrs / 7.33



Source: Bloomberg