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Asset-Liability Management and Product Pricing In A Low-Interest-Rate Environment

Track: Investment, Product Development

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Panelists: David J. Weinsier
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Summary: Interest rates remain low, relative to levels seen over the past 30 years. As companies have discovered, low interest rates can play havoc on a life insurance company's financial statements. Meanwhile, the forward curve is pointing to continued increases in interest rates over the next few years.

MR. DAVID J. WEINSIER: Let me first introduce the panel. Kimberly Roalkvam is from Trustmark Insurance Co. She is an assistant vice president for Trustmark Voluntary Benefit Solutions. It's a division of Trustmark Insurance Co. that focuses on marketing products in a work-site voluntary setting. She has worked at Trustmark for the past five years in various capacities and has been in charge of product development and pricing of the company's life insurance products for the past three years.

Kimberly Curley is vice president and head of product development for variable universal life (VUL) and specialty markets. She works in ING U.S. Financial Service's retail life product management. She's been with ING for 19 years and was formerly a valuation and appointed actuary for Security Life and other ING legal entities. Her team in Denver and Minneapolis prices VUL and accumulation-oriented universal life (UL) products in support of individual and multilife sales strategies.

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

My name is David Weinsier. I'm a consulting actuary with Tillinghast Towers Perrin. I have been with Tillinghast Towers Perrin about four or five years, and I specialize in product pricing, asset/liability management and the valuation of life-settlement portfolios. Prior to joining Tillinghast, I was with ING for quite a few years, in charge of product management for its Atlanta-owned operations.

I am going to offer a consultant's perspective on this topic, based on what I've seen in the interest rate environment over the past couple of years. I'm also going to give some observations on what I see going forward in the marketplace. The other two speakers are going to offer a perspective on the recent interest rate environment, the impacts on their specific companies and how each of their companies has handled and will handle the environment.

I am going to talk about interest-rate trends and behavior and the impact of interest rate changes on fixed annuities. I should add that I'm going to focus my speech on fixed annuities and the impact of the low-interest-rate environment on single-premium deferred annuities (SPDAs). For the most part, the other two speakers are going to focus on UL because that's their area of expertise. I'm going to talk about asset yield enhancements, ways to enhance your portfolio and liability yield enhancements. I want to finish with a little talk about stochastic testing—the asset/liability modeling (ALM) side of the talk. In this day and age, if you're not performing stochastic testing on not only your pricing but also your in-force block, you may not be measuring risk to the degree that you need to.

Let's start with interest rate trends. If it were the summer of 2000, we wouldn't be having this talk. In the summer of '00, you were earning about 6 percent to 6.25 percent interest. The stock market was at an all-time high. Everything was wonderful. Fast-forward to summer '03. People were pulling their products off of the shelves. There was quite a bit of change. Of course, we had a nice increase toward the end of fall '03. It has lowered back down a little bit since then, but there is now talk of rising interest rates. We've been low for a long time. Everybody's expecting a big spike. The 10-year rate might be four and change. That's quite an increase since I last updated this information. The 90-day rate is about 1.25 percent.

Chart 1 shows a price-behavior curve. When you have economic value on the "y" axis and interest rates on the "x" axis, assets and liabilities are going to exhibit this kind of curvature. We're all familiar with this. When interest rates drop, the value of your fixed-income assets is going to increase. It is as simple as that. But as interest rates continue to fall, your callable bonds are going to get called away, and your mortgages are going to get prepaid. That's what flattens the curve at the top.

On the liability side, as interest rates continue to drop, you're going to get more unscheduled money on your flexible products. You're going to see higher persistency or lower surrenders than you'd expect. Once you encounter that guarantee—the amount you earn less your spread—you can't afford the guarantee

on the product. The value of your liabilities is going to escalate significantly.

Interest rates will go up. That means trouble for fixed-income assets. You will probably get some disintermediation, as well, and maybe some extension risk. Finally, as interest rates rise, your liabilities are going to surrender. It is tough to keep up with your competition, especially if you're a portfolio-rate company. You have the new-money companies out there. Your competition is going to take some of your business away. What does that say about the business that remains especially on UL that may not be what you want on your books?

What variables determine a company's vulnerability to interest rates? There are quite a few of them. I've touched on a couple of them. I think that the current yield curve is obvious. Whether today's yield curve is low, high, in the middle, steep or flat, that's going to have an impact on how vulnerable your company is to portfolio rates. Regarding your existing portfolio, are you vulnerable to defaults? Do you have a lot of concentration in a single asset, for example, or in a single asset class? That would make you more vulnerable than your neighbor. Do you have an asset/liability duration mismatch? That would make you more vulnerable.

Let's discuss product features and your guarantee rate. Most of you've already filed your new products at the 1.5 percent rate on your new products. You probably have some in-force business out there with 5 percent and 5.5 percent guarantees on the SPDAs in force. That's going to spell a lot of trouble in this interest rate environment. How long is your surrender charge schedule? I'd throw that into that category, too. What's your crediting-rate methodology? Are you new money? Are you portfolio? That's going to have an impact.

How much do you need to earn via spread versus your competitors? That's going to depend on a lot of things. It depends on your overall expenses and your required rate of return. From a UL perspective, recently companies have been moving toward getting more of their profits from costs of insurance (COIs), thus lowering their required spreads and enabling them to credit a higher rate. Company expenses are often tied to distribution. You have a more expensive distribution system than your neighbors. That's going to make it harder to get your returns.

Regarding required return to shareholders, I have companies that need to make 18 percent. I have companies that need to make 8 percent. It is difficult to compete if you have a higher required return versus competitors that have a lower required return than you do. What about your competitor rates? Who defines your competition? What are you trying to benchmark against? What about lapse sensitivity? If you have a tied distribution, you're not going to see the same lapse sensitivity as if you have independent distributors.

Fixed annuities are good products to add for a couple of reasons when you're talking interest rates. They are primarily investment products with a relatively short duration. Most of your profits are going to come from spread. Low rates are going

to lead to spread compression. I think that most of us who have been selling fixed annuities in this marketplace are familiar with this. If you're guaranteed 3 percent—and as of late, most of your SPDAs out there were guaranteeing 3 percent—your portfolio is probably only earning 4.25 percent to 4.5 percent. You're probably not making your spread, and you're not going to make your required profitability. It's as simple as that.

A rapid rise in rates is also no picnic. All of a sudden, you have increased surrenders, and you're going to have to sell assets at a loss. A slow rise in rates may be the best scenario. Today, all economists are predicting increased rates. They've increased perhaps 50 basis points since year-end. What if they surged another 100 or 150 basis points over the next quarter? That could spell big trouble. I think that what most annuity writers would like to see is a slow rise in rates, not enough to spur surrenders but enough to help us make pricing spreads again.

These lower interest rates can lead to spread compression in a couple of ways. We've talked about the minimum floor. We're all very familiar with that problem. You're also going to see higher-than-expected persistency when rates are low and then stay low. You're going to see higher persistency than originally priced for when your guaranteed rate on your product is favorable relative to CDs and relative to savings accounts. What does that mean? You have an asset/liability duration mismatch, which makes you even more vulnerable to changes in interest rates. You don't have just initial risk on this product.

When you sell the SPDA, is the earned rate on your portfolio sufficient (less a spread) to cover the credited rate? That's your risk at issue. As the business goes forward, as the business becomes in force, the policyholder has a free option to withdraw at book value. There may or may not be a surrender charge period, but you don't just have the risk at issue. You could survive that. Going forward, if yields drop, the policyholders are going to hang on to their businesses. You have additional risk going forward. It's not just risk at issue. Just because you sell the policy at your required spread, it doesn't mean you're out of the woods. You have to continue to watch this block going forward.

SPDAs have become a commodity. Most people would agree on that. It's purely rate-driven. You have your bonus products, etc. You have your equity-indexed annuities (EIAs). You could call that a subset. For the most part, it's an interest-rate game. The yield curve is pretty steep right now, so we see a lot of companies taking a durational bet. They'll invest longer on the yield curve, longer duration on their assets than what their liabilities justify, in an attempt to increase yield. What happens if rates rise 50 basis points over six months? Now, you're locked into these rates for a long time. What are you going to do?

Your competitors are offering this credited rate at 50 basis points higher than they were six months ago. You're in trouble. Do you sell assets at a loss? Do you stick where you are and risk losing this business? If you consider investing longer than

what's justified by your liability duration, you might get immediate yield, but you're increasing your risk. Of course, you have the persistent attempt to maintain current profitability versus your attempt to remain competitive. There is no easy answer here. It all depends on where your business is in the surrender-charge period. How loyal is your business? Are your agents going to roll it over as soon as they can? When rates rise, do you take the immediate hit and try to keep the business, or do you try to keep your current spread, thus keeping profitability where it needs to be but risking disintermediation?

A little while ago, we did a survey among big fixed-annuity writers that offered a bit of insight. I want to share some highlights with you. There were some small companies, but mainly large fixed-annuity writers around the company were asked what their target spreads were. They quoted that they ranged from 175 to 235 basis points, which is reasonable because that's where all of their profit is. We asked them what their actual spreads were. The range was about 130 to 190.

Given that this was in '03, it might have been the bottom. A lot of investors hope that this was the worst-case scenario for this situation. They simply were not earning their pricing spreads, which means that they were flat-out losing money or the investment was not producing a return satisfactory to their shareholders. Mainly, this was caused by the guarantee. If your company was in this situation, be assured that it was not alone.

Let's take a look at credited rates. Chart 2 compares median SPDA-credited rates in the industry versus the six-month average of the five-year Treasury as a benchmark. As you would expect, credited rates typically follow the five-year Treasury. When you're pricing these products, you have to define your dynamic assumptions. That is an important part of pricing and what goes into the ALM behind these products in terms of defining risk. You need to define your competitor rate, so that when you price this product—either on a pricing basis or on an ALM basis—going forward you can get your lapse pattern down, based upon changing interest rates. It is important to model this critical assumption.

We've attempted to create a formula based on the average five-year Treasury. The 40 percent three-month average refers to the three-month average of the five-year Treasury. We'll try to get a formula that ties to these average credited rates. When I say average credited rates, I mean all of the credited rates out there on SPDAs. We did well with these formulas from about 1990 to '00. In '00, the median SPDA rate jumped up, and these formulas lagged behind. One reasonable explanation for that is that companies may have a lower required rate of return or somehow are making their profits somewhere else. Keep in mind that in '00, credit spreads spiked up and stayed up for a good period of time until about '03.

If credit spreads spike up relative to Treasuries, that would justify the SPDA rates being higher than your average five-year Treasury. We think that's the primary cause. A better test would be to find out if this formula still holds water in '04

because now credit spreads are back down to low rates. It is critical to define your competitor rate here or your market rate in terms of setting up your dynamic assumptions.

This is an excess lapse formula that we see in the industry:

$$[7 * (MR\%-CR\%-.5\%)^{1.5}]/100 * [1-(10 * SCR)]$$

Usually for modeling purposes, you have to define your competitor based on the five-year Treasury because your model's got to project stochastically. That is one of your inputs on your scenarios. Then you'll set up an excess-lapse formula, defining your competitor rate, which we just defined (your current credited rate, taking into account your surrender-charge ratio). I trust that each of you has something like the above equation on your model. This is probably more typical for an SPDA product than a UL product. It's got a multiple of seven tolerance at 50 basis points, an exponent of 1.5 and an appropriate surrender charge ratio, which would be lower, depending on whether the policy's in the surrender charge period or not.

You probably want to graph these things to make sure that they're reasonable. For instance, when the difference between your market rate and your competitor rate is 300 basis points and your surrender charge is zero, you expect to see an extra 30 percent in lapses. That seems a little low to me. With 300 basis points difference, you're going to have trouble holding on to any business. I'd say that this is a good check. This is something that I would strongly advise you to do with your formula.

Defaults have to be taken into account, as well. You start off with a pile of bonds that produces a pile of investment return that turns into credited interest. But in '01 and '02, a lot of those bonds went away, either through straight defaults or through downgrades. You had fewer assets on your books. That leads to less investment return, which leads you to the question of what to do with your credited interest. Do you pass the loss on to your policyholder? That is certainly an option. Then again, you run into the risk of losing the business. Do you take the immediate hit? What we tend to see is that companies take the immediate hit because they don't want to lose the business. The present value of the business that they get to keep is more valuable than the immediate hit due to defaults.

Chart 3 compares default experience based on issuer counts and dollar volume in the past 20 years or so and '01 and '02 were bad news. A lot of people were not prepared for this and took some big hits. They changed their assumptions drastically at the end of '02 with these huge default assumptions, and '03 was a relatively tame year. A lot of investment professionals got big bonuses in '03 because their actual default experience happened to exceed their conservative assumptions that had been based on the two years prior. Note that credit spreads usually lag default experience. At the end of '01 and '02, credit spreads were extremely high. Right now, what are your credit spreads on a 10-year AA bond? They're probably less than 80 basis points. That reflects the experience in '03.

Now that we've laid out the problems, let's see if we can come up with some enhancement strategies and ways to improve your portfolio in the given interest rate environment. Duration mismatch is popular. We noticed that in recent years a lot of people have taken a bet on duration. It's not necessarily an increase in the capital requirements, which a lot of people like. The yield curve's been pretty steep. Let's take a look at Chart 4. July '00 is as flat as it can be on the yield curve. You're earning 6.25 percent no matter where you are. In July '01, rates steeped up quite a bit, and '02 had steep increases, historically. I think that '03 was the same story; it had the same degree of steepness. It was just a parallel lower shift. The last time this chart was updated, in January '04, it was a similar situation. I'd say that if you updated this chart right now, 90 days at 1.25 percent, 10 years at 4.8 percent, it's probably even steeper.

Many actuaries are taking a duration bet. This can be done. You will increase your yield. But to take a duration bet, you have to have at least a partial hedging strategy in place. To take a bet naked is extremely risky. What's the reason behind the steep curve? The industry is projecting increased interest rates. If that comes into play, you're sunk. Your assets are going to drop in value in a much greater degree than your liabilities. You're making the bet because higher interest rates are projected. Can you increase yield this way? Absolutely. Does it increase capital requirements? Maybe not. But you need to have at least a partial hedging strategy in place to protect yourself if and when interest rates rise.

Let's go back to the survey. We asked people what their average asset duration ranges were and their allowable ALM mismatch. We wanted to know the average asset duration on their portfolios backing this block of SPDAs and what kind of mismatch their investment policy would allow. Four percent is pretty low. Keep in mind that this could have been from a company that had no surrender charges on its product. I know that TIAA-CREF is famous for its SPDAs with no surrender charges. Four is low, and 0.1 percent is real low.

If your company allows a mismatch of only 0.1 percent, that doesn't give you a lot of room. That's a lot of rebalancing. One additional point I want to make is that today at least half of these companies now have a mismatch of greater than 1.5 percent. Companies are up there in the 2 percent, 2.25 percent to 2.5 percent range, as to allowable mismatches that they're allowing themselves for assets less liability. There's no question in my mind that people are taking a bet on duration.

Increased portfolio credit risk is also a tricky point. This is one I often do not like talking about. We're talking about making a bet on asset selection, betting on a riskier asset in order to take advantage of the increased yield. You have to take into account the increased probability of default, as well. The problem is that traditional measures will have a tendency to overvalue this bet, though the difference between the increased yield less the cost of default is often over-projected.

If you're taking a market-consistent view on your assets or if you're looking into

fair-value accounting (which most of us aren't doing yet), both of those methodologies would put little value on the increased portfolio risk. They would not recognize the increased portfolio risk until it's realized over time. This can be done. But if you're modeling this bet, there's a good chance that your assumptions may need some revising. On a fair-value accounting basis, on a market's consistent value basis, this debt should have minimal if no value. Keep in mind that you're increasing capital requirements, as well.

Increased investment and assets with embedded options refer to callable bonds, prepayable mortgages, etc. You could throw in taking a liquidity bet in private placements, specifically. I know of one company that's got something like 30 percent of its portfolio in private placements. Higher yield equals lower liquidity. Investment strategy optimization and efficient frontier analysis are often talked about but not often performed in practice. I think that the larger companies that make the investment and try to pull this off get good information out of it and optimize a portfolio for a specific segment of assets.

Let's get back to the survey and yields net of investment expenses and defaults. Given that this survey was last year, it is probably not that meaningful today when you look at the gross numbers. What is meaningful is an 82-basis-point difference in average asset yield between the highest and lowest company. That's a big difference. We investigated that a little further and discovered that the guys earning 5.41 percent had the big asset/liability mismatch, the duration mismatch, and took a greater bet on credit spread. In other words, the average grade of their portfolios might have been single A, whereas the guys earning 4.59 percent probably were AA. There is no free lunch.

Always keep regulation, capital, taxes and expenses in the back of your mind. If you have an active asset strategy, you're constantly rebalancing. Make sure that you take those expenses into account in your model. Implementation is always key. I know of one company that came up with this efficient frontier analysis. It came up with this wonderful strategy. At the end of the day, it couldn't implement it.

Now I will talk about liabilities, specifically regarding assets on a current portfolio of in-force policies right now. These are things to consider when you're pricing the product: surrender charges and market-value-annuity feature. Your goal is to increase liability duration. If you can put a feature in your product to increase liability duration, you have a higher asset duration, which means that you can invest longer and earn a higher rate.

Surrender charges lengthen and strengthen. The typical SPDA surrender charge is five to seven years. It maybe starts off at 7 percent and grades. We see investors at 10 percent 10 years out. It keeps the business on the books longer. A market-value-annuity feature is lower capital requirements enable you to credit a higher rate. For some reason, sales of these things took off in '02 and slowed down in '03. I cannot explain exactly why that happened. The fact of the matter is that they are

something to look into because you pass a lot of the investment risk to the policyholder and have lower capital and reserve requirements.

When these were popular, we saw some companies in '03 reducing their first-year bonuses, looking for any way to cut costs. Obviously, cutting expenses is as good as gaining increased spread. Reducing commission rates on your 3 percent guarantee products is probably not an issue anymore. This may or may not increase sales. When you initially consider this, you think that the agents are not going to sell the product. Keep in mind that they've got a more competitive product to sell, so while they may not have the same incentive to sell a specific product with a lower commission, theoretically they'd have a better product to sell, which may or may not mean lower or higher sales.

Most companies have finally gotten around to refiling with a lower guaranteed rate. I know that initially, when the states were allowing it, companies were scared to do it because their competitors down the street were sticking around with their 3 percent guaranteed rate. It took a while for everyone to figure out that we're all in this together. We all need to refile our products at 1.5 percent to 2 percent. I think that most companies have done this today on their new products.

Discontinuing sales was popular. A lot of big companies pulled products completely off of the books. It is dangerous to do this. A lot of people in your company have direct incentives tied to sales. You're not going to make many friends by pulling your products off of the books, especially if you have an independent field force. Once you sever that relationship, it is difficult to get it back. The question remains whether the companies that chose this option were or are able to recover now that their products can make money.

I'm going to finish up with the ALM side of things. Whether you're selling UL, SPDAs, whatever, you better be doing stochastic analysis these days. That's the world that we live in. You have to be doing AG 39 with your variable products. According to regulations, you have to do it. And C-3, Phase 2 (again variable), you're going to have to perform stochastic analysis. It's inevitable that that goes from variable to general-account products. It is important as a tool to measure risk.

We could define risk as a probability of zero surplus. We could run 100 stochastic scenarios. That is relatively tame in the scheme of things. You've discovered that 21 of those 100 scenarios result in zero surplus at the end of year 20, 30 or whatever duration you're running. The other 79 percent finish in the positive, so you dust your hands off. You go up to your boss and say that there is a 21 percent chance that this product will lose money at the end of 20 years. I've seen a lot of companies in which that's all they do. They put a confidence interval on it or expected probability on it, and their job is over. I want you to analyze the tails. When I say analyze, I mean that I want you to find what is causing these rotten scenarios. We know the fact that they're poor scenarios. What specifics about those scenarios combined with your product features or your crediting-rate methodology

or whatnot are causing results to be so poor?

In other words, I want you to punch holes in your product. That's what I like to call deterministic on stochastic. Stochastic analysis used randomly generated scenarios. Once you identify the specific scenario that caused the results to fall in the tail, I want you to perform analysis on that scenario as if it were deterministic. What features about that scenario are causing your product to tank? Identify your probability of ruin, the 21 percent. We all can do that. Analyze the magnitude of the ruin. But specifically, what is causing the risk? Figure out what is causing it, combined with that scenario, leading to the poor result. I like to call these your asset/liability levers.

Is your investment strategy what's causing it to fall apart? Is it a scenario where interest rates spike? Is either your borrowing strategy or your negative cash-flow strategy what's leading to your negative shortfall? Is it your interest-crediting strategy? Is it your guaranteed rate where the problem comes into play? Does it occur in an extremely low interest rate environment, when you hit your guaranteed floor? If you're selling a UL with lifetime guarantees, maybe it's the low-interest-rate scenario. Fund values are dropping below zero, but you have to keep them in force. You have these big AXXX reserves popping up. Is that what's causing the problem? Is it your product design?

If I were performing this analysis, I would take the scenarios that are causing the problem and start a checklist.

MS. KIMBERLY CURLEY: My presentation is focused on general account UL pricing considerations, for which investment earnings can be a key profit driver. I'm going to start with a general definition of interest rate risk that everyone is probably already familiar with. I'll discuss the crediting strategies that companies use in setting crediting rates for UL policies and the risks associated with interest rate movement. I'll cover product design and pricing considerations in a low- or volatile-interest-rate environment. I'll finish with a brief discussion of alternative product offering.

In pricing UL products, both protection and accumulation-oriented, it's important to understand the environment that you're currently in and your company's tolerance for volatility with respect to investment earnings. Our interest rate is really low right now. Rates were lower several months ago. Clearly, pricing actuaries should be addressing volatility with each new product design. Could rates go lower? What kind of impact will this have on your product's competitiveness and contribution to company profits? In the event that interest rates increase, how will your product respond to competitive pressures? These are important considerations. We'll be discussing the earnings implications associated with interest-rate or C-3 risk, which reflects the risk of losses associated with mismatches in assets and liabilities. These mismatches can occur as a result of movement in external interest-rate environments.

Without a market-value adjustment, UL insurance is providing policyholders with a book-value guarantee. The problem then is that the policyholder has the right to surrender, forcing the insurance company to liquidate assets to cover any market-value loss. Surrender charges are typically designed to recover unamortized acquisition expenses and aren't necessarily mitigating factors with respect to the company's ALM or interest rate risk. It's important, then, as part of the pricing process, to consider a substantial interest-rate movement in either direction and understand the potential for profit volatility.

While UL products are often priced using deterministic pricing techniques with static assumptions, in this case, sensitivity testing can be used to stress test the product design to changes in interest rates. It's certainly important to consider the impact of guaranteed minimum crediting rates and other product design features, such as bonus interest, which may lead to more spread compression. Stochastic pricing techniques are advantageous to the extent that resources are available. These techniques allow the company to consider multiple interest-rate scenarios and assess the impact of policyholder behavior as interest rates fluctuate.

In pricing, you'll need to determine how granular your risk analysis needs to be. I would expect that most companies will ask pricing actuaries to analyze the impact of interest-rate risk at the aggregate product level as new products are priced, and at the line-of-business level as part of periodic profitability studies. In reality, crediting-rate analysis is probably done through some kind of committee that involves senior management, product actuaries and representatives from investment and financial areas. Interest-rate risk probably is being managed at the line-of-business level, including all interest-sensitive liabilities. Product actuaries can provide valuable input in this process by assessing the impact of interest-rate volatility and suggesting product designs with balanced margins that help mitigate the overall risk.

What do pricing actuaries want to think about as they run sensitivity tests or, alternatively, stochastic-pricing scenarios? In a low-rate environment, the company may be subjected to spread compression as a result of the guaranteed-minimum crediting rates that are offered to UL policyholders. The company's investment earnings are being hit as a result of lower new-money rates, which drives lower yields on invested assets. Funds available for reinvestment may increase as a result of increased prepayments in the company's mortgage-backed pool, which exacerbates the problem as even more funds are being invested at low rates. Finally, the entire asset base is growing more slowly as a result of the lower-rate environment. It's more difficult to achieve wider pricing spreads as rates fall. The company may find it necessary to discontinue any nonguaranteed bonus interest or persistency refunds that are accumulating to the benefit of the policyholder.

As rates rise, the company may be addressing disintermediation concerns. Companies with a portfolio-crediting strategy can be at a disadvantage, compared to new-money companies. In this scenario, earnings are hit if the company forfeits

its spread to keep up with competitor rates. The differential between market rates and crediting rates is important. Lapse rates are a critical assumption in this scenario. Increased lapse rates may lead to market-value losses if funds are liquidated to pay cash-surrender values, or the company may borrow or tap into short-term reserves to support policy cash flows. All of these options will squeeze investment earnings. The company needs to monitor the cost and benefit of protecting the spread.

With regard to the company's choice of crediting strategy, a portfolio-crediting strategy is widely used and has the potential to provide more attractive returns to policyholders as rates fall. In a low-interest-rate environment, you want to consider the company's appetite for large single premiums and "dump-ins," which can lead the portfolio dilution, as even more funds are being invested in low new-money rates. This portfolio dilution can have an impact on your rate-crediting decisions and can have adverse consequences for in-force policyholders if large investments drive lower overall yields.

As I've already mentioned, portfolio companies can expect more potential for disintermediation as interest rates rise. I also think that it's important in a low-interest environment to strike a balance between spread compression and expense coverage. Companies are generally seeking economies of scale and opportunities to fund fixed expenses over a wider base of policies. Interest-crediting decisions can impact policyholder investment decisions. The company needs to maintain competitive crediting rates to preserve its in-force block. On the flip side, companies with new-money crediting strategies can offer more attractive yields as interest rates increase. But in a low-interest environment, these companies may lose in-force policyholders to companies with a portfolio-crediting approach through the policyholder's 1035 exchange option, and they may have more difficulty attracting new-premium dollars.

I gathered some historical information on average crediting rates offered by companies with new-money and portfolio-crediting strategies, the results of which are shown in Table 1. These data were gathered monthly, from January '02 through April '04, and are not intended to represent any particular company. A general decline in rates has occurred since the beginning of this study, which is consistent with the trend that we see in the 10-year Treasury. With regard to the new-money companies, there is a jump in the number of new-money products that became available early in '03, while the number of companies offering these products stayed level. My data show that three companies launched four new products, with three of the four offering secondary guarantees.

Table 1

UNIVERSAL LIFE CREDITING RATE TRENDS							
Average Crediting Rates - General Industry Data							
	New Money Products			Portfolio Products			
	Average Rate	Number Products	Number Companies	Average Rate	Number Products	Number Companies	10 Year Treasury
Jan -02	5.93%	6	6	6.54%	24	18	5.04%
Feb -02	5.93%	6	6	6.54%	24	18	4.91%
Mar -02	5.91%	7	6	6.48%	26	20	5.28%
Apr -02	5.91%	7	6	6.52%	28	21	5.21%
May -02	5.96%	7	6	6.50%	28	21	5.16%
Jun -02	5.96%	7	6	6.50%	28	21	4.93%
Jul -02	5.96%	7	6	6.46%	29	22	4.65%
Aug -02	6.02%	8	6	6.45%	29	22	4.26%
Sep -02	5.99%	8	6	6.42%	29	22	3.87%
Oct -02	5.80%	8	6	6.33%	30	23	3.94%
Nov -02	5.52%	9	7	6.12%	30	23	4.05%
Dec -02	5.58%	9	7	6.25%	32	23	4.03%
Jan -03	5.38%	9	7	6.14%	32	23	4.05%
Feb -03	5.22%	13	7	6.06%	37	24	3.90%
Mar -03	5.13%	13	7	6.04%	37	24	3.81%
Apr -03	5.12%	16	8	5.94%	37	24	3.96%
May -03	5.04%	16	8	5.88%	39	24	3.57%
Jun -03	5.00%	16	8	5.70%	44	25	3.33%
Jul -03	5.02%	17	8	5.67%	45	25	3.98%
Aug -03	4.84%	17	8	5.60%	48	26	4.45%
Sep -03	4.95%	17	8	5.59%	50	26	4.27%
Oct -03	4.86%	18	8	5.50%	54	27	4.29%
Nov -03	4.84%	18	8	5.49%	54	27	4.30%
Dec -03	4.84%	18	8	5.44%	55	27	4.27%
Jan -04	4.75%	18	8	5.35%	60	29	4.15%
Feb -04	4.72%	19	8	5.27%	63	29	4.08%
Mar -04	4.66%	19	8	5.26%	63	29	3.83%
Apr -04	4.57%	19	8	5.08%	63	29	4.35%

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Table 2 shows the excess of the average portfolio rate over the average new-money rate that I computed for these companies and products. My investment contacts tell me that corporate spreads were widening through the summer of '02 because of events that were making the headlines during that time. You see from these data that the average new-money rates were steady with slight increases through the summer until October '02, while average portfolio rates experienced a modest decline during this same time. With regard to this trend in new-money rates, I compared the average new-money crediting rates to 10-year Treasuries. I found a steady increase in this spread through September '02. This average spread dropped 26 basis points in October.

Table 2

U N I V E R S A L L I F E C R E D I T I N G R A T E T R E N D S
A v e r a g e C r e d i t i n g R a t e s - G e n e r a l I n d u s t r y D a t a

	N e w M o n e y	P o r t f o l i o	E x c e s s	1 0 Y e a r T r e a s u r y
	A v e r a g e R a t e	A v e r a g e R a t e	A v e r a g e R a t e	
Jan -02	5.93 %	6.54 %	0.61 %	5.04 %
Feb -02	5.93 %	6.54 %	0.61 %	4.91 %
Mar -02	5.91 %	6.48 %	0.57 %	5.28 %
Apr -02	5.91 %	6.52 %	0.61 %	5.21 %
May -02	5.96 %	6.50 %	0.54 %	5.16 %
Jun -02	5.96 %	6.50 %	0.54 %	4.93 %
Jul -02	5.96 %	6.46 %	0.49 %	4.65 %
Aug -02	6.02 %	6.45 %	0.43 %	4.26 %
Sep -02	5.99 %	6.42 %	0.43 %	3.87 %
Oct -02	5.80 %	6.33 %	0.53 %	3.94 %
Nov -02	5.52 %	6.12 %	0.60 %	4.05 %
Dec -02	5.58 %	6.25 %	0.67 %	4.03 %
Jan -03	5.38 %	6.14 %	0.76 %	4.05 %
Feb -03	5.22 %	6.06 %	0.83 %	3.90 %
Mar -03	5.13 %	6.04 %	0.91 %	3.81 %
Apr -03	5.12 %	5.94 %	0.82 %	3.96 %
May -03	5.04 %	5.88 %	0.84 %	3.57 %
Jun -03	5.00 %	5.70 %	0.70 %	3.33 %
Jul -03	5.02 %	5.67 %	0.66 %	3.98 %
Aug -03	4.84 %	5.60 %	0.75 %	4.45 %
Sep -03	4.95 %	5.59 %	0.64 %	4.27 %
Oct -03	4.86 %	5.50 %	0.64 %	4.29 %
Nov -03	4.84 %	5.49 %	0.65 %	4.30 %
Dec -03	4.84 %	5.44 %	0.60 %	4.27 %
Jan -04	4.75 %	5.35 %	0.59 %	4.15 %
Feb -04	4.72 %	5.27 %	0.55 %	4.08 %
Mar -04	4.66 %	5.26 %	0.60 %	3.83 %
Apr -04	4.57 %	5.08 %	0.51 %	4.35 %

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I noticed another noteworthy deviation. In July '03, when the average new-money rate compared to 10-year Treasuries dropped 63 basis points, compared to the same spread computed in June, I was curious about the relationship between federal action and corporate spreads. I was able to confirm that the federal government cut rates in November '02 and in June '03, and the new-money spread that I computed using 10-year Treasuries as a benchmark does seem to tighten during these time frames.

It's probably helpful to see this graphically. Chart 5 shows the pattern of rates and margin between portfolio and new-money rates. As the numbers showed, new money in portfolio rates has generally been declining, while 10-year Treasuries experience more noticeable declines and hit an all-time low in June '03. A jump in Treasuries recently occurred in April '04.

Actuaries should be familiar with their company's investment strategy and any opportunities to influence investment decisions to support product-design requirements. I think that another fair question to ask is whether pricing-hurdle rates are responding to the environment. Companies typically use statutory pricing techniques and price products with an internal rate of return (IRR) requirement. While IRR is designed to provide adequate returns from a shareholder perspective,

are expectations reasonable compared to the current interest-rate environment? It's also important to have current-experience studies, especially with regard to lapse experience and premium-funding behavior. UL profitability, in particular, can be sensitive to funding, and external factors can lead to deviations in actual versus expected funding.

Relationships with your distribution channel are clearly a factor in setting appropriate crediting rates. Representatives from distribution will undoubtedly want to weigh in during the crediting-rate-setting process and provide guidance regarding the competitor outlook. Competitor products may be getting less margin from interest spreads, but perception is important, and your distribution representatives may be concerned if your crediting rates seem out of line with the competition. Finally, it's important to understand the drivers of profitability and how they respond to external factors, such as interest-rate swings. Your company may accept spread compression in order to attract and retain business, which contributes to stability and expense coverage.

I'd like to explore modeling and pricing techniques in more detail and consideration with respect to interest-rate volatility. While pricing actuaries are familiar with deterministic methods, which are probably the most practical but can be time-consuming, depending on the pricing software and complexity of the model, in this environment, the actuary chooses static assumptions that are assumed to be constant through the pricing horizon. This may be 30 years or even the number of years until the maturity date. Sensitivity analysis is important, given that investment yield is not static and may influence spread compression as well as other drivers of profitability, depending on policyholder behavior.

As we talked about earlier, it's important to evaluate the hurdle rate that you're attempting to meet, as well as the discount rate for embedded value or value-added calculations. In reality, these rates probably are dictated and could be several hundred basis points higher than today's investment yield. Companies may find it acceptable to price loss leaders or products with lower returns if there are offsets from other products or product lines that help balance out aggregate profitability. Pricing decisions will be reevaluated as companies manage their in force and refresh their product portfolio. If you're not already doing so, you may want to consider transferring capital more frequently than annually in your pricing model, which tends to be more efficient in a low-interest-rate environment.

For accumulation-type UL contracts, it's important to test the product sensitivity to spread compression in conjunction with funding expectations. Accumulation products may build more margins into cost-of-insurance charges and fewer margins into interest spreads. Spread compression may be less of a factor with a lower spread. Crediting rates can be adjusted downward to guaranteed minimum levels. In this case, the product may still be profitable as investment and crediting rates fall, with more profitability coming from cost-of-insurance charges. However policyholder behavior is unpredictable, and funding volatility is an important

consideration. Funding may increase to keep performance on track with policyholder objectives, which could erode your COI margins but contribute favorably to spread margins if they haven't been entirely given up in the product design.

Secondary guarantee products are particularly sensitive to a prolonged period of low interest rates. As crediting rates decrease, these policies are more likely to trigger the guarantee component. This makes them desirable for policyholders to retain. These products may be designed to mitigate this concern by taking a relatively larger share of their profit from the COI component. Because policyholders have little incentive to pay above required-minimum levels, as interest rates drop, the insurance company may find that the fund balance is insufficient to cover the monthly deductions, especially if the product was thinly priced. COI margins can erode, and the company may not be able to raise current premiums if it's already at the guaranteed level. In any event, statutory IRR is limited here because it doesn't show the incidence of profits, and an evaluation of earnings patterns will identify the source of earnings and potential for renewal-year losses.

Stochastic pricing techniques can improve on the deterministic or static techniques by incorporating multiple interest scenarios and appropriate policyholder-behavior assumptions. As rates move, lapse and funding assumptions can be driven by relationships between the product's competitor, by the product's crediting rate and by the market or competitor rate. Stochastic modeling still requires a perspective on future yields and the appropriate new-money rate for first-year and renewal-premium income, as well as rollovers on existing investments. The financial and investment areas should be consulted regarding the appropriate perspective on future yields. Will yields revert to long-term historical averages at some point in the pricing horizon, or will current rates drive the expectation of future rates?

Another consideration is the inflation assumption. Stochastic analysis lends itself to a more dynamic assumption for inflating maintenance expenses. You'll need to consider how to interpret the information and hurdle-rate requirements. For example, do you price your product so that your hurdle rate is achieved in a certain percentage of the scenarios? You'll need to decide whether all scenarios are equally likely, or do you use the mean of your stochastic results to establish an additional haircut expense that must be covered through more traditional static-pricing techniques?

My team recently worked on the stochastic and static IRR for an accumulation UL product. This product was initially priced on a static basis with an expected haircut expense. Stochastic scenarios were later available. The product design was tested on a stochastic basis with the haircut expense removed. We found that the stochastic results were more favorable as a result of the accumulation design structure. Margins were generally coming from COI charges. As stochastic yields fell below the static yield, more COI margins were generated, which contributed to

more favorable IRRs.

Our analysis shows that the haircut expense may be unnecessary and that the product is potentially over 100 basis points more profitable than we originally expected, with the static return being a 75th percentile result. Even the outlier that results from stochastic yields above the static yield provides an IRR that is 68 basis points more favorable than the static IRR. The haircut is potentially an excessive expense. This analysis furthered our understanding of the volatility inherent in accumulation UL. We also have more appreciation for the benefits of stochastic analysis as a result of this exercise. We're analyzing the appropriateness of our static-yield assumption.

There also may be product designs or specialized markets that your company will tend to avoid in a low-interest-rate environment. For example, companies with a portfolio-crediting strategy may be concerned about the portfolio dilution that results from large single-premium policies or increased 1035 exchange activity. Portfolio dilution and interest rate risk can be exacerbated if the company is a big player in the bank-owned or premium financing arena.

With respect to specialized markets, like bank- or corporate-owned life insurance, these markets are attractive to policyholders in that life insurance is a tax-efficient, long-term investment vehicle that can be used to fund long-term employee benefits. But business-owned life insurance (BOLI) scenarios typically involve large, single-premium modified endowment policies. You can expect a lot of money coming in the door at issue. Lapse rates can be low for these markets because of the effort involved in closing these cases and the tax consequences of surrendering the policies. Competitiveness of your product is still important. In a low-interest-rate environment, you will need to assess the impact on the in-force block of portfolio dilution and spread compression, as well as the individual product and market dynamics that may emerge as interest rates rise.

Premium financing is another creative funding scheme that's being used by some advance-market companies. This may be an attractive alternative for a high-net-worth client who does not want to liquidate other investments to fund the insurance policy. The concept works if policyholders can borrow funds to pay life insurance premiums, use the life insurance policy cash values as collateral for the loan, and pay a rate of interest for the loan that is less than the life insurance policy crediting rate. Loan rates are determined by prevailing free-market interest rates at the time of funding but typically are fixed for a short period of time. Premium financing is attractive if it reduces the cash outlay for life insurance premiums, but rapid changes in loan rates can cause the concept to illustrate poorly. Interest rate relationships are critical. These scenarios are often viewed as interest rate arbitrage opportunities with increased interest rate risk and lapse exposure for the company.

Another relevant topic in a low-rate environment is the valuation interest rate and resulting impact on statutory reserves. The '80 amendments to the Standard

Valuation Law defined a dynamic maximum statutory valuation rate for life insurance products for calendar-year issues as a function of the monthly average of the composite yield on seasoned corporate bonds as published by Moody's Investors Service, Inc., for the period ending in June of the previous calendar year. The calculated rate for the next calendar year must be at least 0.5 percent different from the current rate. There is potential for the rate currently at 4.5 percent to drop to 4 percent, effective January 1, 2005. This can have an adverse impact on product pricing by increasing the level of statutory reserves. The available-for-sale portfolio may be less profitable and might need to be repriced to cover this additional cost. The Moody's average for June must stay above 5.93 percent to maintain the valuation rate of 4.5 percent into '05. Rates seem to be moving in our favor right now, with rates for the first few days in June just slightly below 6.25 percent.

Are there any alternative product offerings that can help offset the impact that low-rate environments have on fixed-account UL? VUL allows policyholders to direct their investments away from the company's general account, but the policyholder is then taking on the investment risk. Aggregate profitability studies at my company have shown that IRRs for VUL portfolios tend to respond favorably or somewhat counterintuitively as we look at declining yields. This result is due to the reserving mechanism and the contraliability that's held in our general account on behalf of funds invested in the separate account. As yields fall, we found that the contribution to investment income is less negative in the pricing model.

Creative guaranteed-interest-division (GID) alternatives also may be a solution for risk-averse policyholders who have an interest in VUL products. A GID can provide an initially high crediting rate with a crawl-out scheme that moves money out to one or more subaccounts over a horizon, such as 12 months. Guaranteed-minimum death benefits (GMDBs) may be attractive for potential VUL purchasers with more concern about death-benefit protection. Reserves for GMDB riders, as dictated by AG 37, are costly. Companies may employ offshore reinsurance strategies in order to mitigate the cost of establishing these reserves. Some companies are offering hybrid designs that provide GMDBs based on a minimum premium investment in the GID, with additional funds above the minimums available for separate account investment.

Finally, equity-indexed UL is another alternative offering upside potential and downside protection. The crediting strategy is typically tied to an index such as the S&P 500 with a guaranteed minimum crediting rate floor. Companies can hedge the upside risk by investing in options with a payoff comparable to the interest they expect to credit under the indexing strategy. This may be an attractive solution, as well.

MS. KIMBERLY DAWN ROALKVAM: We are currently in a low-interest-rate environment. We have been seeing lows that have not been seen for the past 35 years. For life insurance, as companies redesign their products to continue to be

profitable with such low interest rates, the premium dollar simply isn't stretching as far as it used to. For UL, with a 200-basis-point decrease in its crediting rate, the premiums for the same level of death benefit can be increasing by 50 percent, sometimes even more. This impact is greatest at the youngest issue ages, when there is a longer time period over which the interest is accumulating.

I will focus primarily on UL because that is the product that we sell. I will cover issues related to the low interest rates and the investment strategies that companies may consider in an effort to pick up extra yield. I also will discuss the issues related to Section 7702, the definition of life insurance. I will not be covering Section 7702A's modified endowment contract (MEC) issues today since we have not had troubles with our products because of the nature of our marketplace and the focus on death benefit protection over cash value accumulation. However, companies should continue to monitor whether they have any Section 7702A issues. I'll address secondary-guarantee UL products and Actuarial Guideline AXXX.

How many of you think that the 10-year Treasury has a 100 percent chance of averaging more than 6 percent interest over the next 10 years? Nobody. How many of you think that chance is 90 percent to 99 percent? Again, nobody. How about 50 percent to 89 percent? Half of you believe that to be true. The rest of you, I'm guessing, believe there is a 0 percent to 49 percent chance. That means that, although interest rates have been going back up, this session and the topics that we're covering are still relevant, since most of us don't think that it will average over 6 percent any time soon.

Interest rates seem to have hit their current low around mid-March of this year, when the 10-year Treasury was at 3.7 percent, definitely below the 6 percent average that we just discussed. The 10-year Treasury serves as a reasonable representation of the seven-year corporate bond and collateralized mortgage obligations that many companies use. Because many carriers price anywhere between a 100- to 150-basis-point spread, this means that crediting rates would have had to be between 2.2 percent and 2.7 percent for companies to earn their price for spreads. Since March, interest rates have risen about 100 basis points. However, when you look at that same 100- to 150-basis-point spread, you can see that the current crediting rates in the industry, even on new-money products, are still above what companies would expect in order to earn their pricing spreads.

At Trustmark, we have seen declining yields in our UL portfolio. Our earned rate has been dropping by about 40 to 50 basis points per year over the past several years. Indications are that other UL carriers have experienced the same drop in their portfolio rates. We have seen that our direct competitors have had similar drops in their crediting rates over the past several years, indicating that their portfolio performance has been much in line with ours. There also has been an emerging trend in the industry of lowering guaranteed interest rates. For many years, it was considered taboo to mention a UL product that had a guaranteed interest rate of below 4 percent. Now that barrier has been broken, and we have seen that many

companies are filing products with 3 percent guaranteed interest rates.

What are some of the investment strategies that life insurance companies may consider in an effort to pick up additional yield to prevent or delay decreasing their crediting interest rates? The two most common are stretching duration or increasing credit risk. This is not profound. The problem with stretching on duration is that you will have trouble selling these investments as interest rates start to go back up. In terms of increasing credit risk, where I work we target an "A" credit, on average. To many, this may seem conservative, but we feel that this is appropriate, given our marketplace. To date, at my company we have been unwilling to go below investment grade because of the additional interest risk. The well-publicized troubles of companies like Tyco International Ltd., WorldCom, Inc., and Parmalat SPA have hurt many life insurers. These have made the whole industry a little more cautious about reaching for yield by taking on additional credit risk.

For life insurance, for which there are other ways to meet product profitability over the short term, the cost of added risk-based capital is an inhibitor to increasing your credit risk. So far, we have not been able to find any magic bullet that will allow us to increase our yield without taking on additional risks that the company simply is not willing to accept. This makes it even more important to design the products to place less emphasis on the investment spread or to support itself in a low-interest-rate environment.

Let's move on to Section 7702 and the definition of life insurance. I'm sure that most of you are fairly familiar with this section of the Internal Revenue Code at this point, but I will briefly walk through the various calculations involved. The key point to notice is that the Code has embedded interest rates at various steps in the calculation, making it more difficult for companies to continue to pass. We will start by looking at the guideline-premium test, which states that the sum of premiums paid at any time must be less than or equal to the guideline premium limitation. This calculation is done once, at the time the contract is issued. The guideline premium limitation is the greater of the guideline's single premium at 6 percent or the sum of the guideline-level premiums to date, at 4 percent. If the guaranteed rate on the contract is higher, that interest rate should be used in place of the 6 or 4 percent specified in the regulation. Another thing to note is that nonqualified riders also make it harder to pass.

Let's look at a sample calculation that will show the impact the hard-quoted interest rates have on a product's ability to pass this test in a low-interest-rate environment. We will start with a 35-year-old male, nonsmoker. We have taken a fairly simplistic product design, yet one that we feel is fairly representative of the products that currently are marketed. We used a face amount of \$250,000 in COI charges equaling 60 percent of the '80 CSO nonsmoker, age last birthday, a monthly policy fee of \$5 and the 6 percent premium charge.

The guideline-level premium required by the Section 7702 calculation is greater

than the annual premium required to mature the policy, based on a 4 percent crediting rate. The guideline's single premium is greater than the cumulative annual premium at Duration 10. This is true for all durations. At a 4 percent crediting rate, this UL policy design continues to pass the guideline-premium test. If we take a look at the 2 percent column, we will see that the policy no longer passes. The annual premium is greater than the guideline level premium. By Duration 10, we have failed the guideline's single-premium test. The hard-quoted interest rates in Section 7702 have created a problem for this policy. One's crediting interest rates must be lowered.

One way to make it a little easier for higher-death-benefit, lower-cash-value products may be to switch to the cash-value-accumulation test, an alternative test allowed by Section 7702. According to the cash-value-accumulation test, the cash-surrender value must be less than or equal to the net-single premium required to fund future benefits. It is important to note that the cash-surrender value used in this calculation is computed without regard to any surrender charge, policy loan or reasonable termination dividends. The comparison must be reviewed on an ongoing basis, and the calculation of the net single premium must be completed at the greater of 4 percent or the guaranteed interest rate in the contract.

Let's examine the same policy design that we had before and see what happens when we apply the cash-value-accumulation test. We will look at the 2 percent crediting example because that is the one that failed the guideline-premium test. The cash-surrender value is always less than the net-single premium. Our policy now passes Section 7702. Another important factor to consider is the introduction of the 2001 CSO, which may have a large impact on a product's ability to pass the tests required under Section 7702. However, as of this time, implementation is still unclear, and many are waiting for guidance from Treasury on this issue.

More and more companies are designing UL products with secondary guarantees. As interest rates decline, secondary guarantees are more likely to kick in. Today, we already are seeing secondary guarantees take effect as early as ages 85 to 90. What you will find is that the risk of the guarantee is highly related to the face amount at risk for a given premium. A higher interest rate in your secondary-guarantee calculations relative to your crediting rate provides a higher face amount per dollar of premium and, therefore, a riskier product design. When looking at UL products with a secondary guarantee, the important thing to consider is the long-run average of the interest rate.

The profitability of secondary guarantees is not as sensitive to the interest-rate movement over any given year as a UL product without secondary guarantees. However, as the long-run average interest rates decline, and the interest rate guaranteed in the secondary guarantee stays the same, the secondary guarantee becomes a much riskier product feature. With a shadow-account design, one key factor offering some protection to insurance companies is that when the secondary guarantee kicks in, and the shadow account is keeping the policy in force, there is

no cash-out provision. At that point, the policyholders cannot take the money and run.

Secondary guarantees were introduced. Then came Regulation XXX. This version of the regulation was not very successful and was adopted in only a handful of states. In '99, a new version of XXX was introduced and was adopted by a number of states. It didn't take long before some companies were coming up with creative product designs, including creative secondary guarantees, to lower their XXX deficiency reserves. As a result, the NAIC introduced Actuarial Guideline AXXX in '01. The guideline specifically mentions eight examples of policies that have been seen as a result of XXX and specifies how to calculate the reserves. Also specified within AXXX are nine steps to be used in calculating the reserves.

I recently sat in on an NAIC conference call regarding AXXX. Two companies have written letters expressing concerns that life insurers may not be setting reserves that are in compliance with AXXX. Their concern stems primarily from potential creative policy designs that have lower statutory minimum reserves than perhaps intended by the authors of AXXX. The debate about national and economic reserves versus regulatory reserves and the issue of life reserves being altered retroactively after product pricing and design is contractually guaranteed to the policyholder is once again in the air. This creates regulatory uncertainty for UL companies.

As a result of the concerns expressed in the letters by these companies, regulators are asking for specific examples of policy designs where this is happening in practice. The authors of AXXX are trying to determine whether there is a flaw in the wording of the guideline or whether companies are simply not following the intent. The eight examples given are intended to be examples only, and the guideline specifies that individuals must use common sense and professional responsibility. AXXX specifies that the reserves held should comply with the letter and spirit of the law. However, it is not exactly clear what this means, and it has been left open to interpretation.

MR. WEINSIER: We have a few minutes for questions. I'd like to get a perspective on what your companies are doing to prepare for the potentially rapid surge in interest rates going forward. If someone would like to offer a real-world company's perspective, I would certainly like to know. When actuaries are projecting their models, they are assuming a higher long-term ultimate rate of return than they have in the past year — 50 to 100 basis points higher. They are taking it into account. Also, we've seen a lot of interest on companies setting up hedging strategies. Especially if their duration mismatches 200 basis points or so, they quickly want to get a hedging strategy in place to mitigate the risk of that potential surge in interest rates.

MR. HENRY B. RAMSEY: I have a comment for Ms. Curley about liability duration and secondary-guarantee products. I think that you were talking about how you need to test a variety of stochastic scenarios. It isn't customary to test stochastic

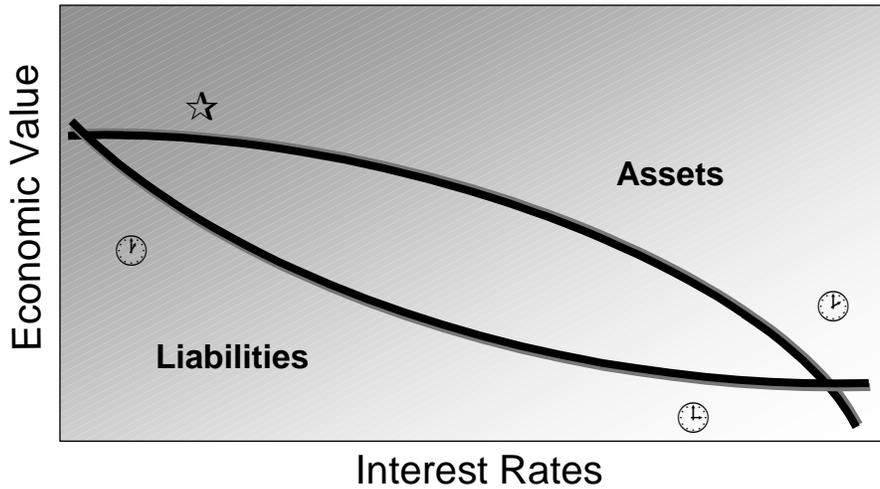
scenarios on lapse rates or policyholder behavior, though. It is tough to build a model like that. I think that we need to emphasize to everybody that, as you are testing different scenarios, you need to look at whether your policy really does experience a 2 percent, 1 percent or 0 percent lapse rate. You've got a long liability duration. What does that do to your investment? What does it do to your mismatch? What does it do to your profitability?

MS. CURLEY: We're just starting to delve into the whole world of stochastic testing, looking at scenarios as well as the appropriate policyholder behavior. I know that our chief actuary is interested in building in what should be appropriate policyholder behavior assumptions. I think that we would want to test designs to make sure that they're not lapse-enhanced. In the event that lapse rates are low, are we getting adequate profitability in the future? What kind of policyholder behavior would we expect? I agree with you. We're certainly starting to do more research in that regard.

MR. WEINSIER: When you see those kinds of ultimate lapse rates, that's usually not from issue. Experience shows that the fund value is close to zero, if not less than zero. From issue, that kind of product may show slightly lower lapse rates than a traditional UL. But if you have guaranteed-credited rates or credited rates that are lower than the shadow-account credited rates, the guarantee is truly a guarantee, especially when the fund value drops below zero and you see the ultimate lapse rates. I think at that point, companies would consider revising their asset portfolio.

Chart 1

Price Behavior Curve

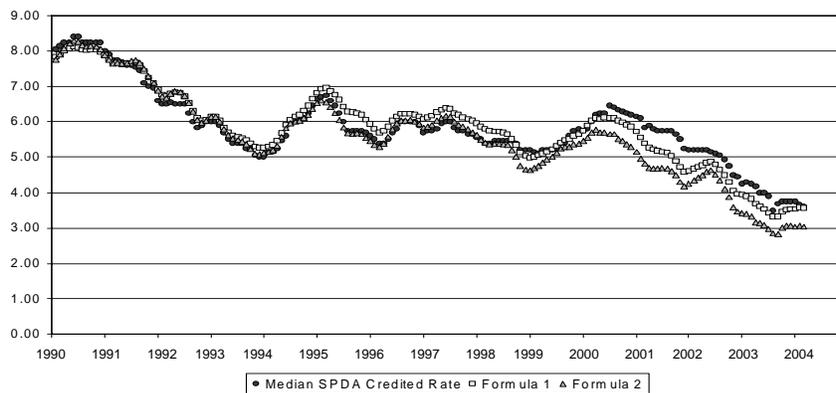


4

Chart 2

Dynamic Assumptions (Fixed Annuity)

Define a competitor rate (i.e., market rate)



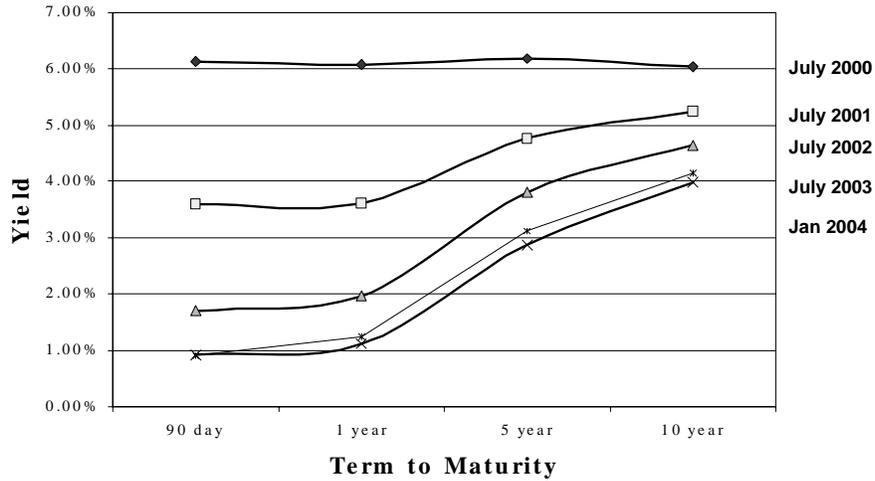
Formula 1 = 40% 3-mth avg + 30% 12-mth avg + 15% 36-mth avg + 75bp

Formula 2 = 55% 3-mth avg + 45% 36-mth avg - 50bp

10

Chart 3

Yield Curve Slope



15

Chart 4

2003 Tillinghast Fixed Annuity Survey

- Asset duration
 - Average asset duration ranges from 4.0 – 5.8
 - Allowable ALM mismatch ranges from 0.1 – 1.5



17

Chart 5

Universal Life Crediting Rate Trends

