

**1988 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

REGULATION 126 REVISITED

MR. PETER B. DEAKINS: What did companies learn from Regulation 126? I have helped several clients do their Regulation 126 filings, and I have also seen a number of Regulation 126 filings from different companies as part of my consulting assignments. So I have some idea of what companies have done. Different companies have derived widely differing amounts of value from Regulation 126. It depends on what the companies tried to get out of the work they did. Unfortunately, a lot of companies just viewed Regulation 126 as a regulatory headache. Basically, those companies did the least amount needed to satisfy the regulation and get their reserves accepted. Those companies got nothing out of the regulation. They spent a lot either internally or on a consultant to do an unwanted analysis that they ignored. That is unfortunate, because the analysis required for Regulation 126 can contain extremely valuable information.

Other companies used the information from Regulation 126 as a comfort factor to reassure management that the company wasn't going under soon.

The companies that really got value from dealing with Regulation 126 used it as a starting point for comprehensive asset and liability management analysis. If you are

doing what you need to do to be well-managed and to have a good handle on what your business looks like, you will find Regulation 126 is almost a trivial afterthought.

One of the current issues with Regulation 126 is whether you should use deterministic or stochastic scenarios. There are advantages and disadvantages with each. Stochastic and deterministic scenarios have a tendency to produce different kinds of results for different products. I have a good idea of which scenarios are dangerous for structured-settlement annuities. You don't need to test more than two or three scenarios to have an idea of whether or not the structured settlements can survive a certain level of interest rates. I have found that when you do stochastic scenarios, the chance of rates dropping down to the lowest level possible and staying there is fairly slim. However, when looking at deterministic scenarios, people tend to look at a scenario where rates go to the bottom of whatever they think is possible. In the New York scenarios, I think that scenario is Scenario 5 or 3 depending on how you number them. Typically the structured settlements look a lot worse under deterministic scenarios than they do under stochastic scenarios.

The reverse is true for deferred annuities. With deferred annuities, how high or how low rates are doesn't matter. The critical issue for deferred annuities is how volatile rates are. As rates jump around, the options sold to policyholders become very valuable. Typical deterministic scenarios do not capture that volatility. So you find that the

stochastic scenarios tend to be much more severe for deferred annuities or universal life than for products like structured settlements where the only risk is a long-term downtrend to rates. One of the problems I have with deterministic scenarios is that seven scenarios can't meaningfully cover the universe of what is possible. Another problem is that the New York scenarios as a class tend to be very steady and stable. You have rates gradually going down and hitting the floor and staying level, or you have rates gradually going up and hitting the ceiling and staying level, or you have rates shoot up in one year, but thereafter they are level.

Almost any stochastic process is going to have rates that go all over the place. If you believe that rates follow a random process, they don't tend to stay in one place. So one of the areas where the Regulation 126 comes up a little short is that, as a class, the scenarios you are viewing are very unlikely. Obviously, any individual scenario has a zero probability of occurring, but these types of scenarios have virtually zero probability of occurring as a class, as well.

We are going to do a case study to illustrate the different ways that stochastic and deterministic scenarios affect two different products: deferred annuities and structured settlements. Slide 1 shows the investment assumptions that we used. We assumed bonds would be callable at 108 percent of par, and we made all of the other typical

SLIDE 1

INVESTMENT ASSUMPTIONS

- ASSETS EQUAL STATUTORY RESERVES
- BONDS ARE ASSUMED TO BE CALLABLE AT 108% OF PAR
- BONDS ARE ASSUMED TO BE CALLABLE 5 YEARS FROM THE DATE OF ACQUISITION
- BONDS ARE ASSUMED TO BE CALLED WHEN THE RATE ON NEW BONDS FALLS 2% BELOW THE COUPON
- NEW INVESTMENTS ARE ASSUMED TO EARN 105% OF THE TREASURY RATE, PLUS 75 BASIS POINTS

kinds of assumptions for this type of analysis. If you have done Regulation 126 filings or if you have been following the developments in the law, you probably are familiar with this type of assumption for investments.

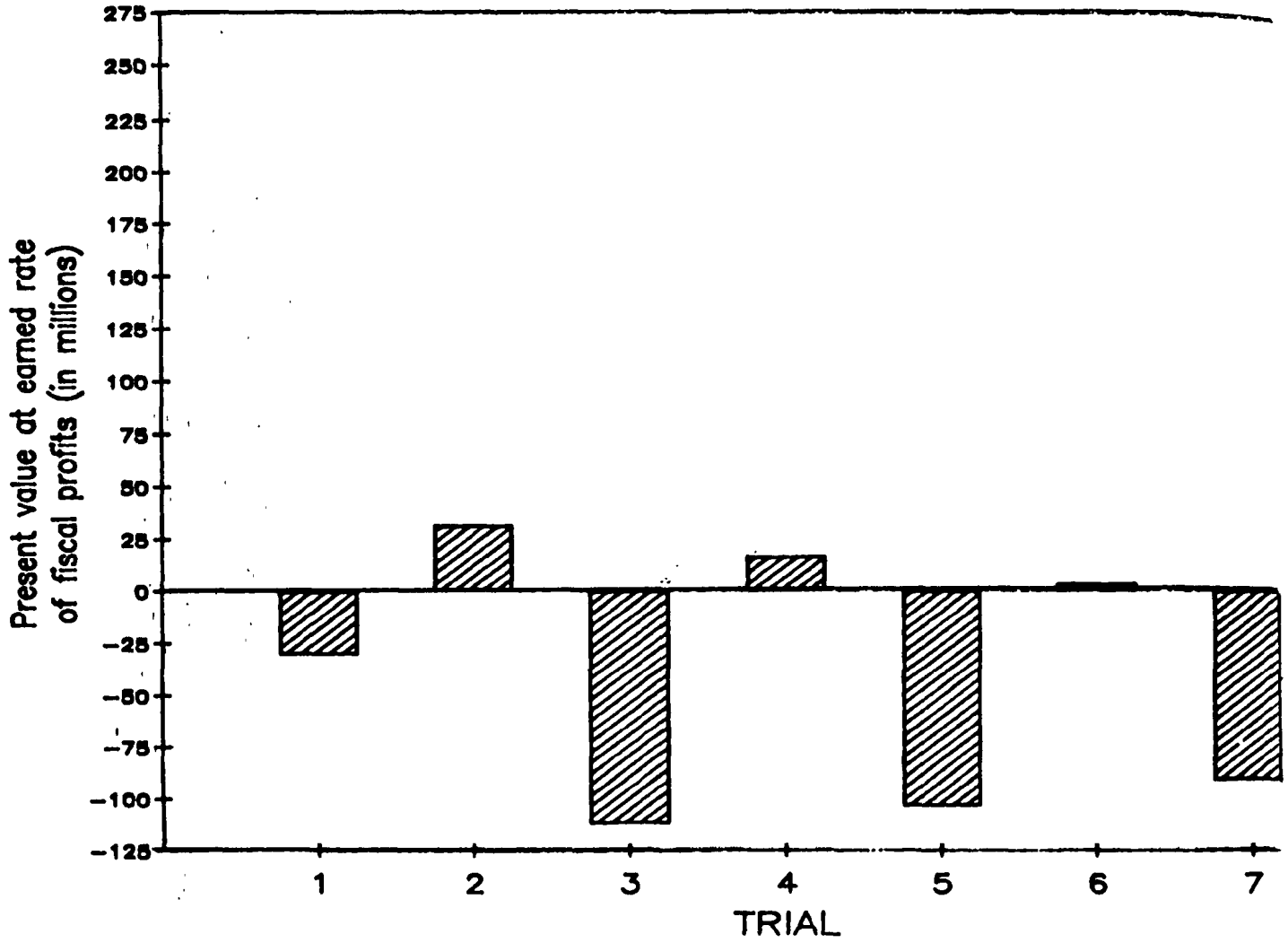
When we looked at the stochastically generated scenarios, we used a yield-curve universe in which rates could move over a range of fifty different possible curves. Treasury rates could be as low as 2.5 percent and as high as 18 percent short term and as low as 3.5 percent and as high as 16 percent long-term. Notice that this set of assumptions is of a broad universe. The rate movements are much wider than are typically possible under the New York scenarios. Yet, even those movements allow for rates to go down much further than the deterministic New York scenarios do, because rates aren't likely to stay at that bottom curve. This set of scenarios isn't as severe for the structured settlements as the New York scenarios.

We looked at an \$800 million block of structured settlements. The company projected both expected cash flows and reserves for us. We were not looking at any new issues. Because this is a fairly mature block issued over the last five years and rates have steadily gone down since that business was issued, under the New York scenarios, the structured settlements did not perform very well, as you can see in Slide 2. Remember that, under stochastically generated scenarios, rates could go down further than they could in the New York scenarios. Yet out of the fifty scenarios, only one had a negative

SLIDE 2

Product: Structured Settlements

Strategy: Fixed



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result, and that was just barely negative as opposed to four out of seven negatives for the New York scenarios, as you can see in Slide 3. This illustrates the conservativeness of the typical deterministic scenarios for structured settlements. Incidentally, that could be overcome. You could arrive at fifty deterministic scenarios that match the fifty stochastic scenarios that we used. However, given human nature, deterministic scenarios tend to follow some simple pattern. That is the major problem with deterministic scenarios; they almost invariably miss some types of scenarios that are fairly plausible.

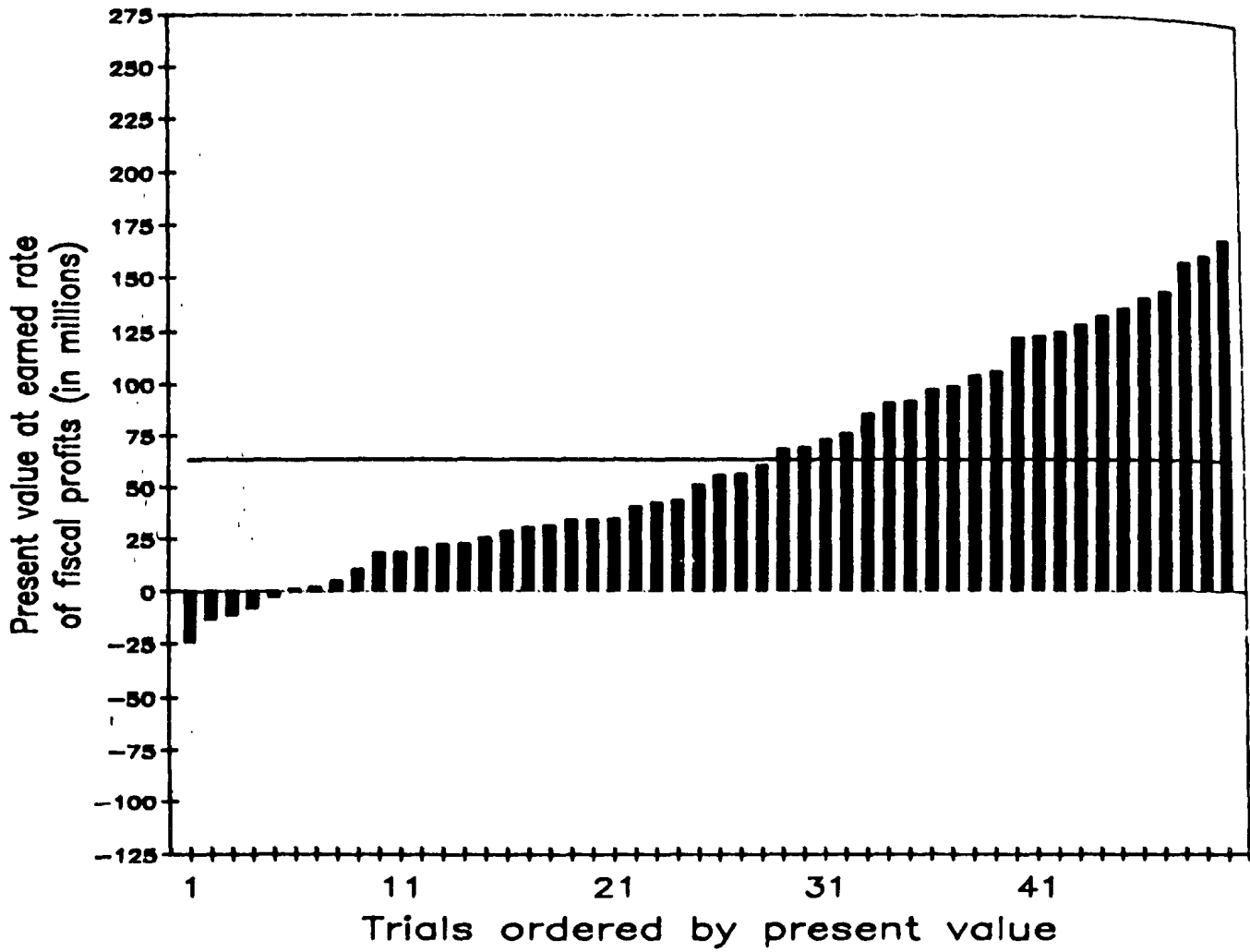
We also looked at a deferred-annuity block, which had \$1.1 billion of reserves. We assumed that the market rate, in other words, what the policyholders could get on new money if they went elsewhere, was a twenty-year Treasury rate. We further assumed that the company will credit the earned rate less 150 basis points. The lapse assumption was very similar to the one that Donna Claire showed you earlier. Also, this block included some flexible-premium deferred annuities, so we had interest-sensitive premium suspensions as well. Slide 4 shows that we made some more classic actuarial assumptions and that we assume the company will buy ten-year bonds.

The reverse of what happens in the New York scenarios for structured settlements is true for deferred annuities. Since they were issued over the last five years and rates have steadily gone down, moderate changes in interest rates from today's rates aren't that harmful for the company. Even a 3 percent spike takes you about up to where

SLIDE 3

Product: Structured Settlements

Strategy: Fixed



SLIDE 4

DEFERRED ANNUITY ASSUMPTIONS

BEGINNING RESERVE:	\$1.1 BILLION
MARKET CREDITED RATE:	20 YEAR TREASURY RATE
CREDITED RATE:	EARNED RATE LESS 150 BASIS POINTS
LAPSES:	$8\% + 2 \cdot (\text{MR} - \text{CR})^2 - .5 \cdot \text{SC}$; MINIMUM OF 8%
PREMIUM SUSPENSION:	$10\% + 2 \cdot (\text{MR} - \text{CR})^2$; MINIMUM OF 10%
MORTALITY:	75% OF 65 - 70 MALE ULTIMATE, AGE 35
EXPENSES:	\$17 PER POLICY MAINTENANCE EXPENSE .15% INVESTMENT EXPENSE
NEW ISSUES:	NONE
INVESTMENT STRATEGY:	10 YEAR BONDS

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most of their business was issued. So under all seven New York scenarios, the results are very positive, as you can see in Slide 5. Under the stochastic scenarios, the results of which are shown in Slide 6, for deferred annuities, the results were uniformly positive, although they weren't as attractive as the results under the New York scenarios. Again this illustrates my point that the New York scenarios tend to be unduly favorable.

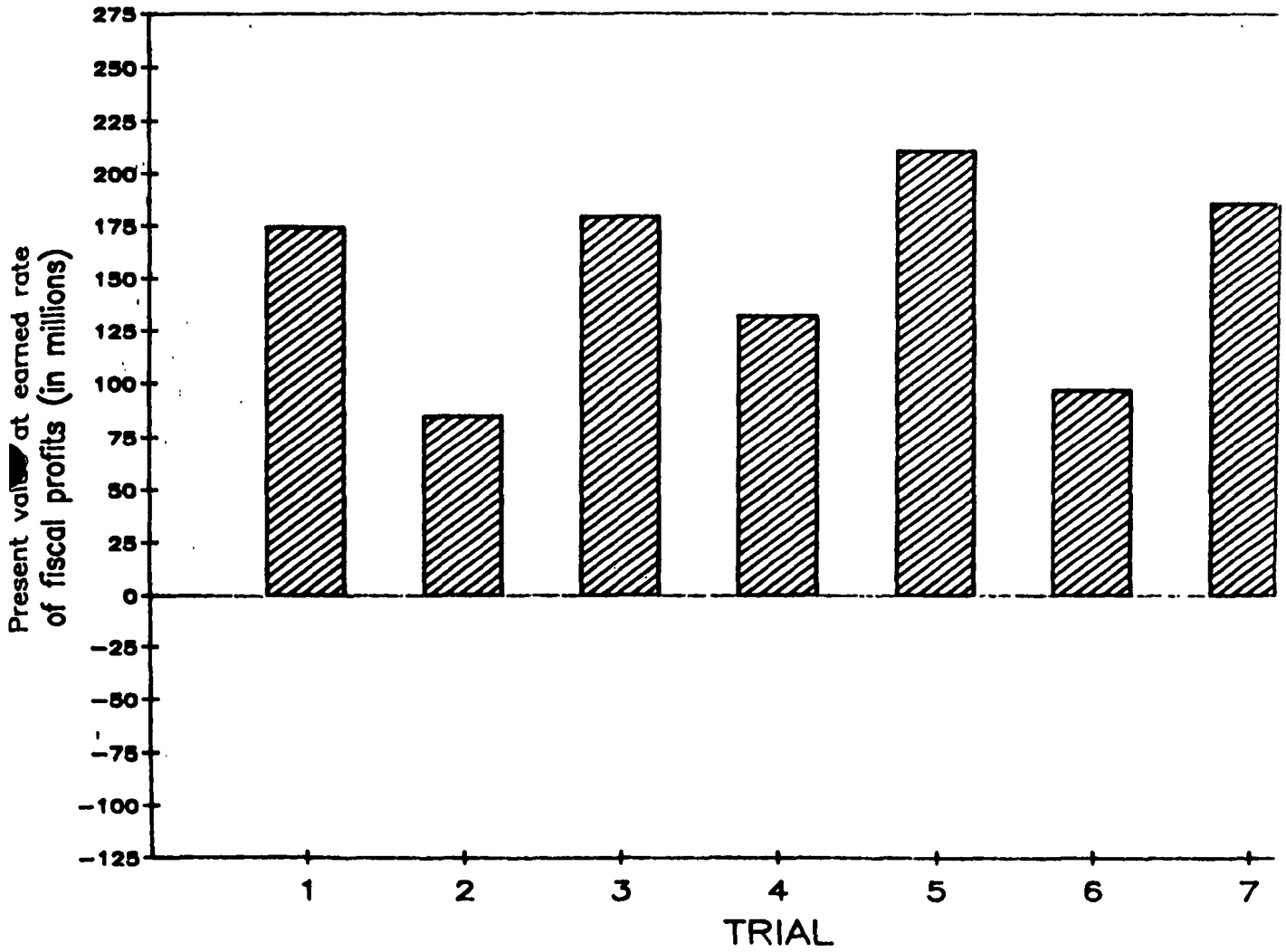
Another issue with Regulation 126 is combining lines of business. When we do these tests, if we are going to be giving an accurate representation of the risks that different companies are taking, it is essential that we allow companies to combine different lines of business and take advantage of the different risks in the liabilities that offset each other. Otherwise we are saying, "You can do all you want to be well-managed and limit your risks, but that is not going to have any impact on the way we evaluate the level of risk that is in your company. We are going to look at everything and compartmentalize boxes."

The New York Insurance Department has some legitimate concerns. One is the projection period. In the early opinions and memorandums the Department received, there would be thirty- or forty-year projection periods for single-premium deferred annuities (SPDAs) with what the Department felt were not very realistic assumptions. The projections built up tremendous surpluses in the SPDA line, which would then offset any risk in the structured-settlement or immediate-annuity line.

SLIDE 5

Product: Deferred Annuities

Strategy: Fixed

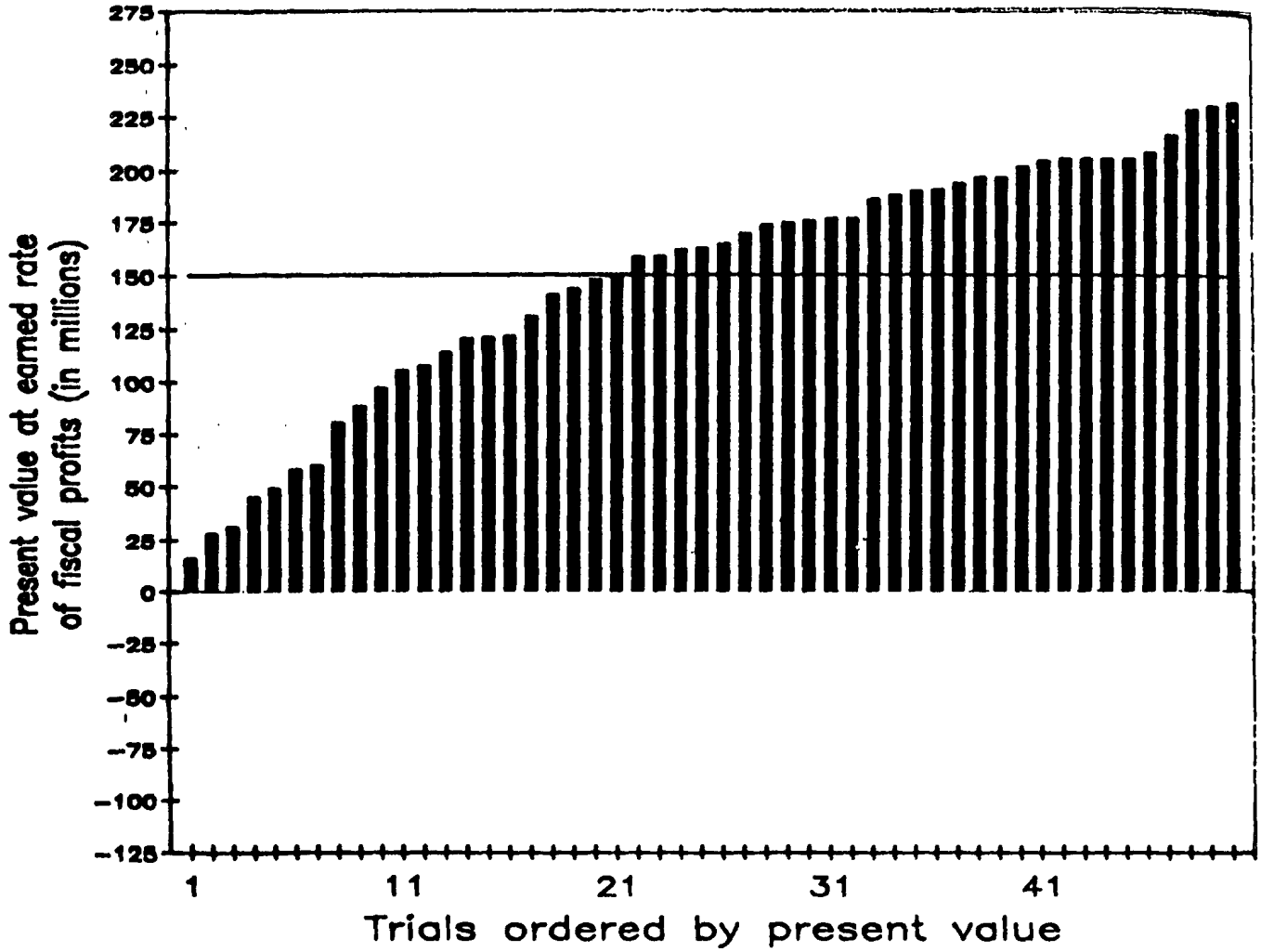


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SLIDE 6

Product: Deferred Annuities

Strategy: Fixed



In addition, if you lump all of the liabilities together into one cash-flow projection, you could be hiding big problems with the structured-settlement line that the Department would like to know about. Similarly, there could be a big problem with the deferred-annuity line that the Department would like to know about. It is easier to use unrealistic assumptions for the deferred annuities than for the structured settlements. The Department would like to keep the structured settlements pure and pristine.

The solution that the Department has hit upon is to say that, with some minor exceptions, you can't offset excesses in one line against deficiencies in another. I don't think that is a good solution. It fails to reward companies for doing the appropriate thing: to limit their risks. A better solution would be to clamp down on unrealistic assumptions, and the Department is already moving on that. The second thing, which the Department has done, is simply to require that SPDAs not be projected beyond ten years. That restriction substantially reduces the problem of unrealistic assumptions because you don't have forty years to build up enormous surpluses.

I have alluded to mixing structured settlements with SPDAs, as an obvious example of two lines which have different risks, and hopefully those risks will be offsetting. You can also mix structured settlements with guaranteed interest contracts (GICs).

Conceivably, you could mix SPDAs with traditional life insurance products, or the single-premium whole life line with structured settlements. There are a lot of different

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possible combinations of lines where the risks are very different between the two lines so that you get some advantage from mixing the two.

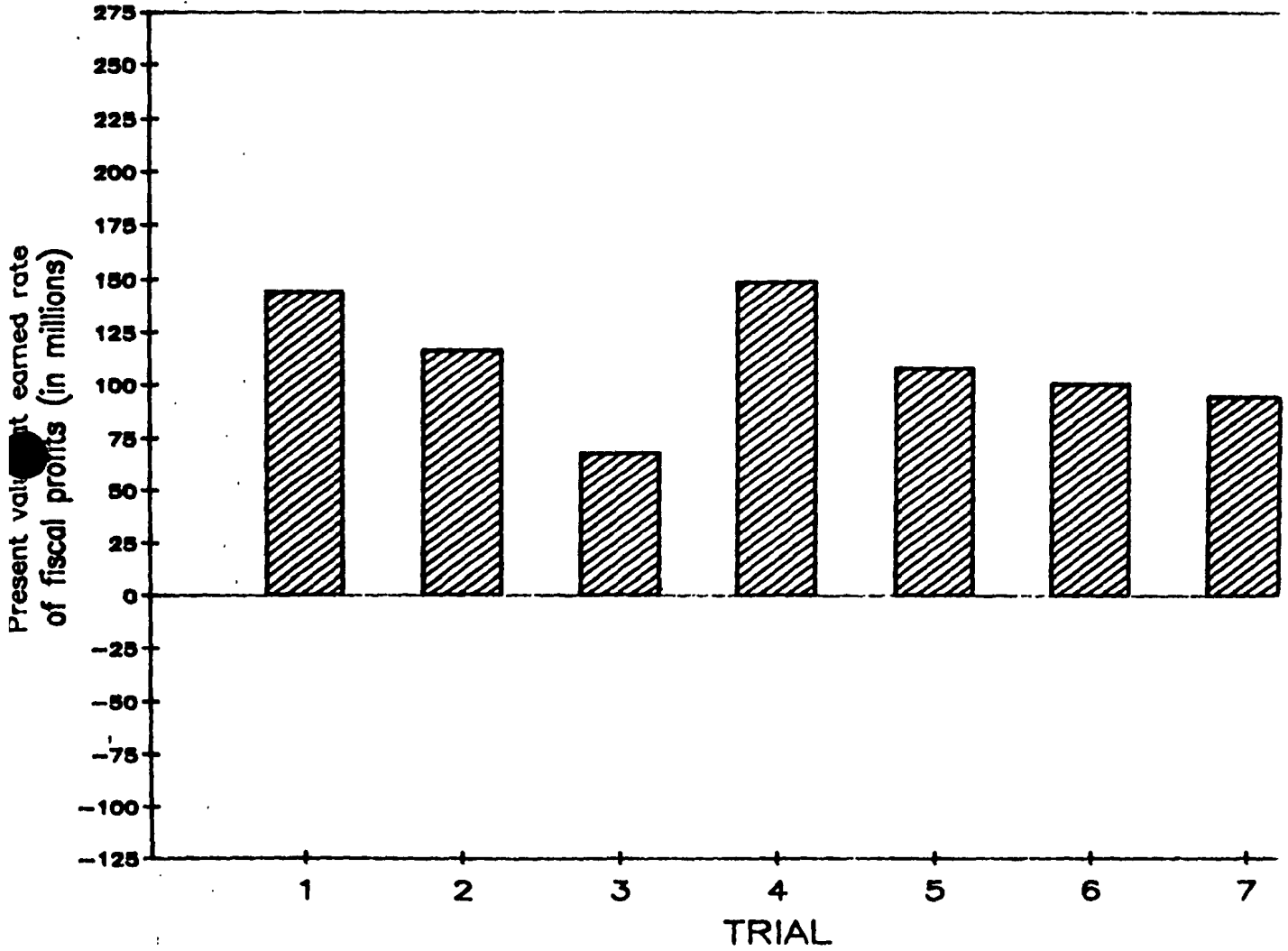
I will now take the results from the preceding case study, and combine the two lines of business. If we had looked at the two lines separately, we would have said, "The deferred annuities are fine, but the structured settlements are failing four out of seven scenarios. You have to hold a penalty reserve." When we look at the two lines combined, they are fine. In all seven scenarios, the company has sufficient assets, as you can see in Slide 7. In fact, this particular company had issued both SPDAs and other deferred annuities along with structured settlements with the very idea that the two risks were offsetting. Thus if interest rates fell, the deferred annuities would perform well, and the structured settlements would not perform as well, but the two risks would offset each other. The company was pleased in this case to find that its policy was working fairly well.

Similarly, when we separated the deferred annuities and structured settlements in the stochastic scenarios, there were a couple of scenarios that were negative for the structured settlements, and there were one or two scenarios for the deferred annuities that were near zero. In Slide 8 when you combine the two lines of business, the effect on the results under the stochastically generated scenarios is even more dramatic than under the deterministic scenarios. In this graph, the results are close to the mean line in

SLIDE 7

Product: Combined Structured Settlements and Deferred Annuities

Strategy: Fixed

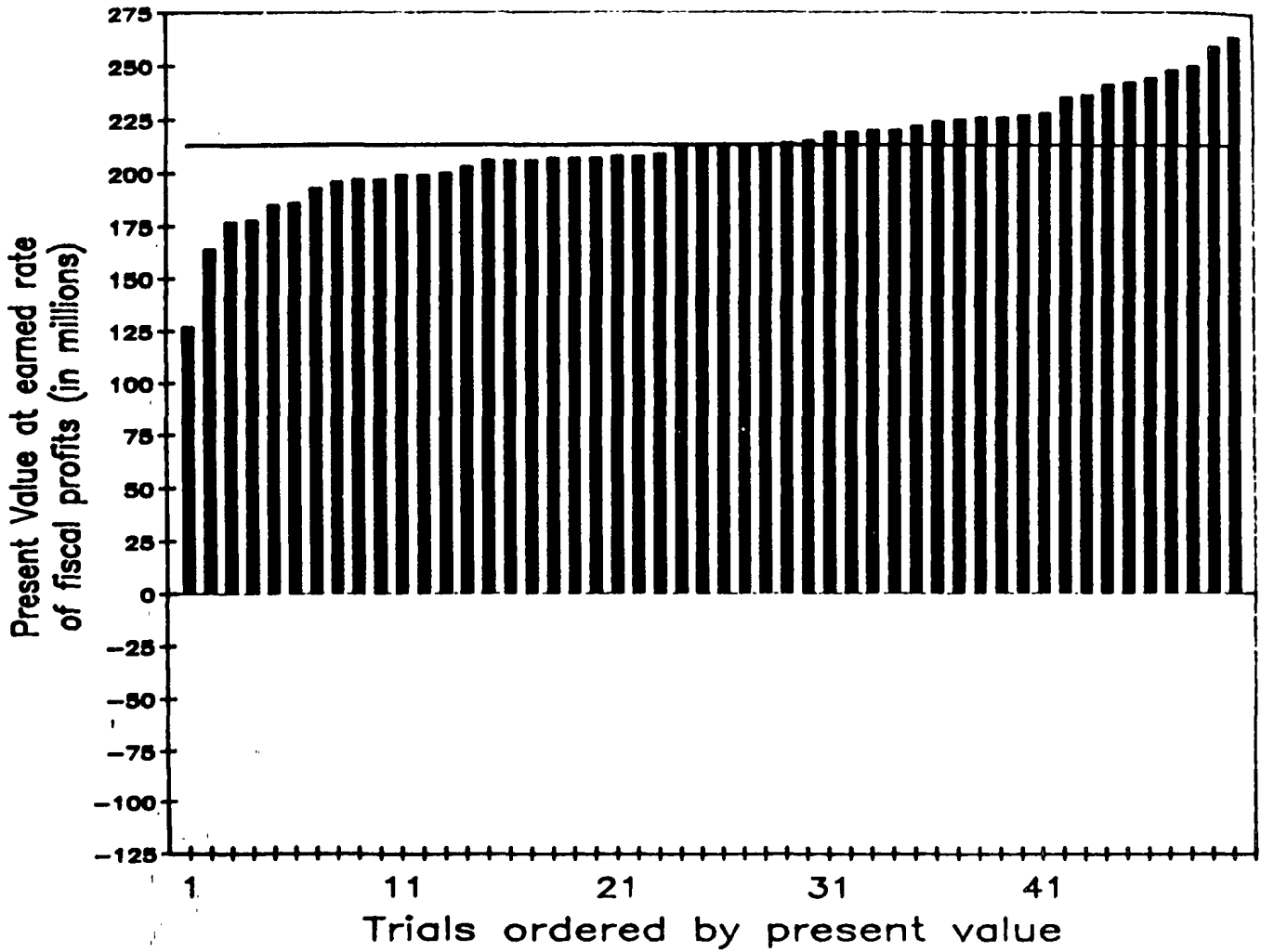


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SLIDE 8

Product: Combined Structured Settlements and Deferred Annuities

Strategy: Fixed



every case, even though each line by itself has a lot of interest rate risk. This information illustrates why it is important to encourage companies to sell multiple lines. The insurance industry can bring its risk down from what were very big risks when it issued only SPDAs or structured settlements. These are "bet-your-company" type of risks. Combining liability risks is one way that companies can substantially contain their risks. It is most unfortunate that the Department is not encouraging this type of risk reduction.

When the two lines are combined, the worst case is almost as good as the mean of the deferred annuities, and it is far better than the mean of the structured settlements. In this situation, a company has virtually locked in a gain situation by mixing two lines where there had been a distinct possibility of either losses or virtually no gains in the separate lines.

Another issue is what should be done with the mandatory securities valuation reserve (MSVR). One question is: Is the MSVR available to offset C-1 risks, C-3 risks, both, or neither? The Department has taken the position that the MSVR is available at most to offset C-1 risks. I don't know that there is really a right and a wrong answer to this. However, you can't pay dividends as long as your assets are in the MSVR. The MSVR reduces the company's ability to pay dividends either to policyholders or to stockholders. In essence, for statutory purposes, the MSVR works like a reserve. The MSVR is an

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asset- fluctuation reserve. I think that the MSVR ought to be available for both the C-1 and the C-3 risks, not for just one or the other, but I can understand why people would have a different opinion.

Another emerging issue with Regulation 126 is that if you take capital gains, that causes your MSVR to rise. Then you can't use the MSVR in testing your reserves. You may find that, because you now have less assets available to back the reserves, you have to set up a penalty reserve. So in effect you have actually reduced your surplus by taking the capital gain. Not only did the capital gain go into the MSVR, it also caused you to hold an extra reserve, so it is being counted twice. That is something that the Department needs to deal with if it is not going to let the MSVR be used as a reserve for the purpose of these analyses.

Another issue with the regulation is how to set default rates. This is a tough question. You can do all kinds of analysis with historical data, and you will come to the conclusion that default rates are low compared to what New York would like and what I think makes sense. For instance, Edward I. Altman and Irwin Vanderhoof and several other people have studied the junk-bond question and looked at historical data. The conclusion that they have reached is "Why doesn't everybody have junk bonds?" You never know what the future is going to hold, so from a reserve point of view, just because defaults were low in the past doesn't mean they are going to be low in the

future. In addition, the period, in which junk bonds have been issued, has been an excellent economic period. So you have to wonder whether the experience is suspect. There are a lot of issues that are open in the valuation actuary field. Defaults are the most open issue - the area where actuaries have the least confidence -- at least, where I have the least confidence.

Another issue is whether or not you should include taxes in your analysis. Who knows what the tax environment is going to be in two years, let alone in ten or twenty years? In the last several years, we have had three major tax revisions. In my judgment it would be a mistake to require prefunding for surplus taxes, for instance. Another problem is how to allocate the surplus tax between lines for mutual companies. You run into a series of issues like that when you are evaluating taxes. You make some assumptions, but you have to wonder about them. Another critical thing with taxes is how close to statutory reserves are the tax reserves. The closer the two are to each other, the less important taxes become because they will tend to reduce the size of any surplus or deficit. But taxes typically are not going to change a surplus into a deficit, and of course, they won't change the deficit into a surplus.

My next topic is the setting of appropriate assumptions. Obviously, you need to think about crediting rates and what the company's strategy is going to be. Also, you need to ask, "How realistic is the stated strategy?" We get a lot of companies that state a

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strategy of crediting the earned rate less 250. If you look at these companies' experience, their credited rate has been above the earned rate less 250 basis points, seven out of the last eight years. You have to evaluate how likely a company is to follow the strategy that it has stated.

Similarly, if a company says it is going to credit the earned rate less 150, and it is an agency driven company, you will have a lot of pressure as interest rates rise to follow the market. Of course, in over 50 percent of the cases I get involved in, there is no stated strategy. Then the actuary actually has to turn the heat up on someone to come up with a strategy. You can suggest things, but it can get to be tricky if the company has never thought about it. Actually, it can be a useful exercise for the company, which may realize some new things about the way it runs the business.

Some of the different strategies you see are crediting the market or crediting the earned rate less 200 basis points. A lot of times you see strategies where you are going to credit the earned rate less 200, but you will be never more than 300 basis points below the market, and you will never be above the market because there is no incentive for a company to be above the market. A lot of times you will see strategies where you will lag behind the market; as interest rates go up, you will be halfway between where you are today and where you were last year. The strategies that work the best in terms of producing the best profitability, being reasonable, and producing the least amount of risk

for the company are strategies where you lag behind the market as it goes up and where you try to stay with the market as it goes down. To some extent, if you do that, you alleviate the impact of the policyholder's option to withdraw with a fixed surrender charge.

Setting appropriate lapse assumptions has been covered a lot of times. One of the interesting things that I find is that some companies say they have never had more than 4 percent lapses on SPDAs. The thing to remember is that when most companies have been issuing SPDAs or universal life, rates have been almost steadily declining. Thus, companies almost always have been crediting a higher rate on their existing business than the market rate. When that is the case, you might argue that, whatever the lapse experience has been, that should be the minimum rate you use in your lapse formula. Also, some people feel there is a maximum lapse rate. I think there is one, too. I am just not sure it's below 100 percent. I think that any maximum lapse rate assumption below 50 percent is hard to defend. I like to tell the story of the company that came to us and said, "We have a problem; our lapses are running over 100 percent." We said, "You do have a problem!" It turned out the company was calculating lapses wrong. It took a monthly lapse rate of 9 percent and multiplied that by 12 and came up with 108 percent. If you think about what a 9 percent monthly lapse rate implies for your annual lapse rates, that comes out to a 68 percent annualized lapse rate. Thus, I have seen that

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it is possible to be well over 50 percent. You need to think about maximums or at least think about not including them.