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## Session 37PD Equity-Indexed Products—Design, Pricing and Hedging (Part II)

**Track:** Product Development/Investment/Financial Reporting

**Key words:** Product Development, Equity-Indexed Annuities

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*Summary: Interest in equity-indexed products has been mushrooming in both the U.S. and Canada. Equity-indexed annuities (EIAs) have been called the most significant individual product development since universal life. But for many companies, the “how to” problem has been lagging behind the “can do” attitude. To assist actuaries with the “how to,” this two-part session addresses the following issues:*

### *Customer and Distribution Perspectives*

- *history/variations of design*
- *sales results*
- *target market and customer needs*
- *life versus annuity products*
- *competition from other financial products*
- *Securities and Exchange Commission (SEC) issues*
- *policy forms*
- *market conduct issues*

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*Pricing and Design Perspectives*

- *pricing techniques*
- *design variables*
- *pricing/marketing trade-offs*
- *sensitivity of pricing to market conditions*

*Funding and Hedging Perspectives*

- *terminal and intermediate hedging objectives*
- *modeling and assessment of risk*
- *C-3 risk of various designs*
- *funding approaches—pros and cons*
- *practical issues in funding*

**Ms. Lilia M. Sham:** In the first session (part I), we talked about the general design considerations and hedging issues. In the second session, we are going to cover the reinsurance and tax implications of investments related to equity-indexed products. As Charlene would say, if you want to avoid the “D” word, you might want to talk to a reinsurance company. So to address those reinsurance issues we have Inger Harrington from CIGNA Reinsurance. She is an assistant vice president and actuary at CIGNA Reinsurance, where she specializes in life and annuities reinsurance pricing. She has been actively involved in equity-indexed products in the last year-and-a-half. Her company has been helping clients to reinsure equity-indexed liabilities of the equity-indexed products. She has been with CIGNA for 15 years, and she was in the pension and group health care area prior to joining the reinsurance practice.

To tell us about the tax implications of investments related to equity-indexed products, we have Dennis Nelson, who is not an actuary. He is with KPMG Peat Marwick at the Minneapolis office. He is the tax partner of the financial services practice at KPMG, and he has been consulting with life insurance companies for ten years. He is currently working with investment banks, investment companies, and hedged funds.

**Ms. Inger S. Harrington:** I'm really pleased to be talking about the reinsurance of EIA. The EIA market over the last two years has really exploded, and watching this happen has been really exciting. It has been exciting to talk to the companies that are in the market, as well as those that are thinking about getting into the market. Whenever a reinsurer sees an emerging product like this, they immediately want to find ways that they can help. We think we have found a way to help, and that's what I'm going to be talking about. In almost all my comments, I will reference annuities rather than the insurance product, but in fact, they're equally applicable to the insurance product. The reason is the annuity product is further along the development curve, and I naturally will say annuity instead of insurance.

There are really two topics that I'm going to talk about. The first is derivatives, and the second is reinsurance. In part I of this session, I think we showed that derivatives really are the key to EIA.

If you didn't have equity-backed derivatives, you wouldn't have an EIA product. As you start to develop it, thoughts will soon come to your mind like, you can't live with them, and you can't live without them. That's exactly the case with derivatives. So first I'm going to talk about why you can't live without them. They can't be avoided. In part I we talked about different investment strategies for EIA, and every prudent investment strategy that you can think of involves derivatives. You can't escape them.

The most common approach that's used is to invest to meet the minimum guaranteed amount under the product. In the equity-annuity product, you pay a single premium amount, and you get a minimum guarantee on that. You put it in a contract for a typical term of 5–7 years, and the guarantee is that 90% of the premium that you put into the contract will earn 3% interest over each of the 5 or 7 years in the contract. That satisfies the standard nonforfeiture law. Most of the premium dollars that the direct writer collects go to purchase investments that will ensure that they can meet the minimum guarantee. Of the remaining funds, part of it goes for their expenses and profit, and the balance goes to purchase derivatives. The derivatives lock in the excess over the guaranteed amount. In this strategy, they're buying Standard & Poor's (S&P's) 500 call options, and all you really need to know about them is that when the market goes up, the call options will pay. The more the market goes up, the more they pay you. You can structure them to exactly mirror your obligation at maturity. Between the standard investments and the call option that you've purchased, you have the funds that you need to meet your obligation.

Another approach that companies have thought about is why don't I invest in the stock portfolio that mirrors the S&P 500? You also have a need for derivatives. In that situation, you have to protect yourself if the portfolio of stocks does not perform sufficiently to meet your contractual guarantees. You have to have a poor return not to be able to meet your minimum guarantees, but you still have that risk.

As we talked about in the earlier sessions, there are a lot of different product designs out there, and most of them don't just base your benefit at maturity on the S&P 500 index on that single date. There are various averaging approaches—averaging over days, weeks, months, and even years. There are others that base it on the high watermark on the policy anniversary. So your portfolio of stocks may not be adequate if you don't buy a put option in this case. The put option will provide you

with the funds you need if the market performs poorly. I do not really want to get into the investment strategy. I just want to make sure everyone is clear that you really couldn't do this without the derivatives. If you just invested in your normal general account, you would be gambling with your customer's money. That's something that your customer, your senior management, and the regulators wouldn't like, and I'm sure nobody really would entertain doing that.

You can't live without derivatives, but it's also difficult to live with them. Derivatives can be a problem for direct writers. These problems stem from the fact that equity-backed derivatives are a fairly recent development. These instruments came about in the early 1970s, and really became more popular in the 1980s. When many of the investment regulations were drafted in the states, equity derivatives weren't on the scene. So they weren't contemplated by the regulations. That has led to some problems, which I'll talk about later on.

There have been many public debacles involving derivatives. Local governments have invested in them. Banks have had problems with them, and it has created just a general anxiety in the general population. When you say the word derivative, people become very uneasy. So all these things have contributed to some roadblocks that the direct writers have to face when they go into developing an EIA product. It's somewhat ironic that the roadblocks are coming from the very people who would say, if you're going to write an EIA product, you have to hedge. If you have to hedge, you certainly should invest in S&P 500 options because it creates a perfect match. Your liability goes up and down, depending upon the S&P 500 index, and so do your derivatives.

The people that are setting up the roadblocks are the regulators, senior managers, and rating agencies, all of which are impacted by the fact that derivatives are new and there have been scandals involving them. I should point out that a lot of the bad publicity has come from the speculative use of derivatives, not using derivatives in the hedging program. That subtlety is missed on a lot of people. When they hear derivatives, they become very uneasy. Derivatives are also a problem for companies because they have to be managed. Their values are constantly changing. The liabilities are constantly changing for the direct writers. So you have to monitor them, and you have to rebalance over time. This is a problem, as well, that makes living with derivatives difficult.

As reinsurers, we were excited about this market and looking for a role that we could play. I first thought about some of the traditional approaches for reinsurance, co-insurance, modified co-insurance, and surplus arrangements. We thought maybe we could do something a little different. These days, many reinsurers are reinsuring the minimum guarantee death benefit on variable annuities. We thought maybe

there's a counter product to this on the EIA side. Today, the reinsurance guarantees the minimum death benefit for variable annuities. Upon death a comparison is made of your account value to your minimum death benefit. If your account value is less than your minimum death benefit, there is an exposure and the direct writer has to come up with a difference. That's what we reinsure on variable annuities.

We wanted to find out about the EIA marketplace. Perhaps we could reinsure the death benefit there. In this situation, we would cover the excess over that minimum 3% interest guarantee on the product. This was particularly attractive to us because it meant that we would have two products that were naturally hedging each other. In the beginning of the process, we went out to talk to companies to find out if this idea would work with them. What we found out was they really wanted something much more than this. It wasn't just the death benefit that they were concerned about.

We talked to a lot of companies, and found out what their three biggest headaches were that they faced with respect to EIA. Almost all companies we spoke to noted, and this was almost unanimous, that derivatives were their biggest headache. Their second headache was derivatives, and their third headache was derivatives. The first derivative headache is that you have derivatives on your statutory books. I mentioned earlier that when the state regulations were drafted, derivatives weren't on the horizon; they fall into another category. In some states, that means it's another type of investment, and they deem it to be nonadmitted. You have the full liability on your books, but you don't get credit for the derivatives that you've purchased to back that liability. You don't look as solvent as you otherwise would.

In other states, derivatives are considered another type of investment instrument. They fall into the basket provision. That means you can go ahead and invest in them, and they will be counted as an admitted asset, as long as you don't have more than 5%, 10%, or 15% of these other type investments. If you are successful in showing, which everybody hopes to be, then soon this basket provision is going to be a problem for you. So companies are not happy with that element of it. The other thing is that your derivatives appear on Schedule defined benefit (DB) on your statutory books. The rating agencies do look at this, and it's a red flag to them. They have seen the various publicity about derivatives. They want to know how you're using them. Is it speculative? Is it hedging? While there's a perfectly sound explanation for why you have these derivatives on your books, they're going to want to come in and talk to you. This is always a sensitive issue. Companies would prefer to avoid the discussion altogether than to open up a discussion on this. Finally, senior managers are no different than the rest of us. They're uneasy about derivatives, and in many companies they have to be sold on getting into the EIA marketplace because of the use of derivatives.

The second derivative problem has to do with the fact that companies know they need expertise in the derivative marketplace. Charlene Barnes has a lot of expertise and she shared it with us in the Equity-Indexed Products, Part I session. Many companies don't have that expertise. Many companies that entered the marketplace early on are fixed annuity companies, and they just don't have a lot of experience with equity-backed derivatives. So companies are uneasy.

Derivatives are the new kid on the block. Many companies are going to Wall Street and feeling a little vulnerable. How can I be assured that I'm not being taken advantage of or that I'm getting the best possible price? Even if I get the best price, will I continue to get that good price as I move along? So that's the second headache people face.

The third headache is managing the derivative program itself. It is a dynamic process, and dynamic can mean something very specific. In this instance, it is dynamic because it is always changing. It's time consuming. It's labor intensive. When all is said and done, your hedge isn't perfect anyway. If everybody lasted or kept their contract to maturity, you could have a perfect hedge program, and I wouldn't be standing here talking to you. You have deaths and withdrawals occurring at times that you can't predict with certainty. This is an issue for many companies. So what we came up with for a reinsurance approach is not just to reinsure the excess of the contract value over the minimum guaranteed value on death; we reinsure that excess on withdrawals and maturities as well.

So I'm going to talk a little bit about reinsurance now—how it works, how it alleviates those three headaches, and some additional advantages. The way it works, money the direct writer would have given to the derivatives dealer or the investment banker goes to the reinsurer. It's the reinsurer that will work with Wall Street to select the hedge instruments, and what's key here is that the reinsurer bears the performance risk. If they purchase derivatives that don't adequately match the hedge, and if they don't buy them on the right date and the market has moved, those are risks that the reinsurer (rather than the direct writer) bears.

Now the reason this can work this way is because the reinsurance treaty itself has language in it that mirrors the language the direct writer has with his retail customer. You won't see language in the reinsurance treaty that references strike price, notional amount, maturity, or exercise dates. Those terms are irrelevant as far as your reinsurance treaty goes. Our reinsurance, or any reinsurer's obligation under this sort of arrangement, is based strictly on the performance of the S&P 500. Because of this, in some respects, the direct writer shouldn't even care what the

reinsurer invests in because all the assets of the reinsurer back the obligation, not just the derivatives that are purchased to hedge the risk.

Headache number one is solved because this has favorable statutory accounting treatment. You will receive statutory reserve credit for the risk that you're transferring to the reinsurer. Second, the treaty should not be viewed as an option derivative in and of itself. This means the direct writer doesn't have those derivative problems. They don't go away magically. They are transferred to the reinsurer. In many situations, the reinsurer is in a better position to handle those problems.

Headache number two was the lack of expertise. The direct writer doesn't really care that he lacks the expertise. He doesn't have to hire or beef up his internal staff. The reinsurer is, in essence, acting like a wholesaler by going out to Wall Street and purchasing derivatives on behalf of many companies' derivative programs.

Finally, because the risk belongs to the reinsurer, the reinsurer is managing the hedge, and that eliminates the need for the direct writer to have an in-house staff to manage the hedge program. The reinsurer will be monitoring the assets and liabilities and rebalancing as needed. The rebalancing will be in the aggregate of balancing the portfolio of all the EIA customers in the aggregate, and only purchasing derivatives or selling derivatives when the aggregate position requires rebalancing.

There are some additional advantages. This approach allows the direct writer to keep the lion's share of the money. The bulk of the money is invested to back up the guaranteed amount. This, in fact, is the traditional area of expertise for most fixed annuity companies, and they'll be able to keep the money to do that themselves.

Second, and this is an important one that I mentioned before, it's the deaths and withdrawals that complicate the hedge program. Most companies make assumptions. If they expect only 90% of the people to be there at maturity, they'll take the money and purchase 90% of the derivatives that they need, anticipating that the other people won't be there to collect. Depending on your benefit design, you may also have to provide some participation in the S&P 500 for deaths and withdrawals, and you can buy shorter duration options for that as well. But the one thing you can rest assured of is that whatever you assumed, experience isn't going to be the same. This creates a risk that some companies are uncomfortable with. Depending upon the reinsurance arrangements, some or all of this risk could be transferred to the reinsurer. Required surplus can be less. The reinsurer is a known entity, and for those of you who have worked with corporate actuaries, it's not a strictly scientific process for setting required surplus levels. It is somewhat

subjective, and comfort I think plays a strong role. Most direct insurance companies have had relationships with reinsurers that go back for decades. They know the reinsurers, they have a history with them, and so they may be more likely to set a lower required surplus level than they would dealing with the investment bankers.

If you really are just starting to develop an EIA product, you may be feeling somewhat overwhelmed because it really is a complicated product. What adds to the complication is the derivative piece. For companies not yet in the marketplace, a reinsurance arrangement of this type could help you get to market more quickly. With respect to companies already in the market, a reinsurance arrangement of this type might help with respect to the next generation of products, as it's based on a different index or different formulas that require maybe more sophisticated hedging techniques. A reinsurance arrangement like this could help.

Finally, your reinsurance costs may be lower than what you expect. You have to consider resources versus risk retention and the cost of the hedging instruments. Without reinsurance, you're going to have to invest a significant amount of staff and system resources to manage this product effectively. For many companies this is difficult because they've been through downsizing. It's not like there's a lot of excess capacity in the work force to take on this challenge. With reinsurance, you're essentially paying the reinsurers an outsourcing fee, and that's built into the reinsurance premium.

As far as the risk retained without reinsurance, the direct writer is bearing the full risk of the hedge performance. In addition, they're bearing the risk associated with deaths and withdrawals deviating from expectations. With reinsurance there's no hedge performance risk. There are also, depending on the contract, varying degrees in transferring the termination risks as well. The less risk you retain, the lower your required surplus might be for that reason as well. The cost of the hedging instruments, without reinsurance you're buying derivatives on your own behalf. You'll be going to the marketplace buying smaller quantities than a reinsurer who would be combining the derivative programs of many companies. There are certain minimum amounts that you need when you go to Wall Street to buy your options. Lately there hasn't been as much of a price differential as there has been in the past between the small amounts and the larger amounts. Traditionally, for the larger amounts, you get a better price.

I mentioned the reinsurer is the wholesaler. They're going out and buying on behalf of many customers managing this as a single portfolio. Because derivatives are only being purchased when the aggregate position needs help, you have fewer transactions, and therefore fewer fees. So the reinsurer's cost of the hedging instruments may be lower, which would be reflected in the premium that you



would pay. I spent a lot of time talking about why reinsurance may be a good idea in this instance. It's not really for all insurance companies. I want to make that point as well. One of the actuaries at one of the companies I was speaking with said, "We have no fear of derivatives at our company." In that instance, there really wasn't a need to pursue this particular reinsurance approach with them.

If you want to keep your assets in-house, if you understand the derivative marketplace, if you're comfortable with the derivative marketplace, and if you want to control your hedge, then this reinsurance approach is not for you. However, I think the majority of the people that we have spoken to feel very much like saying "Please, no derivatives, keep them off my books." So as far as the future of the EIA product goes, I think the potential is just enormous. Whether it will eventually be one third of the marketplace (one third being fixed, one third being equity-indexed, and one third being variable), nobody really knows. Depending upon who you're talking to, you'll get different answers. It definitely has a permanent role. In addition, I think the role for the reinsurance is there as well.

**Mr. Dennis Nelson:** I want to bring tax into the formula. I think the best way to talk about tax as it relates to this product is to say that the goal of most people should be that tax should be a neutral factor in your strategy in issuing this type of product. We talked about the various instruments and derivatives being used, as well as volatility. For tax to be a neutral product, liabilities must be going up and down and the value of assets must go up and down.

We have gains and losses that are occurring within the portfolios associated with the derivatives, the futures contracts, and so the key issue is that we can make sure the losses are offset by the gains and vice versa. When we look at an insurance company from a tax standpoint, we still have to deal with the capital asset rules. Capital gains and capital losses are subject to the same tax rate as ordinary income. All the benefits have been removed for corporations. In the new proposed legislation that is out, there's capital gains relief for individuals, but there is no capital gains relief for corporations. We still have the downside of capital assets in that if we have a capital loss, that capital loss is nondeductible. I guess if we have a whole amount of regular capital activity within the insurance company that constantly generates capital gains, then maybe that's not going to be an issue.

One of the things Alan Ryder discussed at the part I session about the major risk quadrant in issuing EIA was a low market with high interest rates. If we have high interest rates, our bond portfolios are going to be depressed, and our ability to create capital gains in the normal run of the portfolio are not going to be available. So we'll have an issue if we don't monitor and deal with some of the special things that need to be done from a tax standpoint out of an EIA product, you'll have capital

losses created that would be nondeductible. They might be deductible in the future, depending upon the company's overall tax situation.

I want to go through and talk about some of the derivatives and things that we've been talking about here. We'll talk about some of the tax consequences associated with investing in those in an insurance company.

I'm the tax partner, but there certainly are GAAP and statutory issues that will roll into some of my discussion of tax. I think Inger talked quite a bit about a number of the statutory accounting issues; many times tax will follow statutory treatment in a number of cases. Typically, when it's to the detriment of the company, if there's a favorable statutory accounting treatment, the IRS finds some way to not follow that favorable aspect. From a GAAP accounting aspect, there are some major proposals going on looking at accounting for derivatives and hedging proposals that have a 1998 effective date. What we've been seeing on the GAAP side is more of a movement toward a mark to market philosophy, especially in the GAAP literature.

From a statutory accounting standpoint, I think we typically are a little bit behind in being able to deal with some of the hedge accounting aspects. I know I looked at this a couple of years ago just to get into the statutory literature to find out how hedge accounting aspects should be treated, and there's generally quite a difference.

There are basically two sides to the tax accounting considerations. I'm going to focus on the investment and the asset side. There's a task force of the American Academy of Actuaries that's dealing with the tax reserve side. I don't think they've come up with the perfect solution yet because there are just so many variables in how you can issue these products and how to deal with those variables. Investments are our liability hedging vehicles that we had to deal with. What are some of those items? One of the things that we talked about was to deal with the basic guarantee that some type of fixed-income security, or maybe zero-coupon bond will be utilized. Then, when it came to hedging the linkage to the indexes in the product, a couple of alternatives would be available. You have the exchange-traded options, which are the S&P futures contract and S&P options. I think it was mentioned that you're typically not going to invest in the futures because you would put a significant amount of the company's capital at risk given a downturn in the market. Options on futures is going to be the typical vehicle that you're going to deal with. From the over-the-counter instruments, private options can be structured to be quite similar to the exchange-traded option.

Equity slots, which Alan talked about somewhat, are also a type of instrument that can be utilized to deal with your risk. Another item is referred to as structured

notes. Typically, in the slot situation, there is a notional principal amount. In a structured note there will actually be a movement of principal involved like a debt instrument from that standpoint.

There is also reinsurance, which Inger talked about. The tax issues or tax risks that you have are timing and character. The timing risk is matching the movements in the reserve values with the realization event on the tax side from holding these instruments. The character risk is the risk of having capital losses versus ordinary income on opposite sides of your hitch. I'm going to talk about the general treatment of these items, but there is a special rule that's in some regulations that came out in the early 1990s; they're called the clear reflection of income rules. They're in the accounting method section dealing with derivatives. They speak to hedging transactions entered into in the ordinary course of business to reduce risk of price changes or volatility related to either property that you own or debt that you've issued, or ordinary obligations that you have. I would suggest that your obligations related to the EIA that you've issued would be ordinary obligations of an insurance company. If you have that type of transaction occur, this regulation states that you should adopt an accounting method with respect to these instruments that will clearly reflect income. To clearly reflect income you're going to have to look over and see what you're doing on the reserving side of the balance sheet in order to examine what may be an appropriate accounting method for these instruments from a tax standpoint. The GAAP approach may come in and be an appropriate methodology to us; it's a marked-to-market approach. Exactly what would occur is still open to some level of interpretation.

As far as the character side, Section 1221 came out a couple of years ago when a Supreme Court decision was handed down. It was creating problems for a number of taxpayers by suggesting the derivatives were capital assets because of their general nature and how they're held by companies. Companies wanted losses under hedging vehicles to be ordinary losses, and in this Arkansas case, the Supreme Court determined that no, this was a capital asset and the loss was a capital loss.

An uproar occurred in Congress as a result of that, and more pressure was put on the Treasury and the IRS to solve the problem; we don't want to create and deal with it in legislation. So the IRS came out with regulations that gave taxpayers an option to basically go through an identification procedure when they enter into hedging transactions. If you declare up-front that you are entering into a hedging transaction, and in fact you are entering into a hedging transaction, then you can get ordinary treatment. You will get ordinary treatment on gains or losses on those instruments even though they may be capital assets to you. You do have to declare

up-front. With respect to the timing in that reference to Section 1221, you need to be using a clear reflection of income approach.

Most of you know how the fixed-income securities are dealt with. Usually it's a yield to maturity basis. There are some special rules for discounted premiums that apply to insurance companies. Interest income is usually ordinary; capital gains and losses are recorded at the maturity or sale of the instrument. What about exchange-traded options in futures? Let's say that it was determined that this clear reflection of income didn't override, and we weren't going to have to look to the reserves to determine it, what were the general rules that control what we do with exchange-traded options and futures. From a timing standpoint, most exchange-traded options and futures like an S&P 500 or S&P 100 contract are going to constitute what's called under the Internal Revenue Code (IRC) a 1256 contract. A 1256 contract has a special recognition requirement in that it must be marked to market at the year-end of the insurance company, of the taxpayer. So if you hold S&P 500 options or futures, those items on your balance sheet will be marked to market (from a tax standpoint) at year-end.

Under 1256 the options are given 60/40 treatment, which is 60% long term, 40% short term. It has no relevance to the insurance company. In the end, it's all a capital gain or loss, unless you dealt with the 1221 character election. The character issue relates that this is going to be a capital asset under the Arkansas decision that all these regulations under 1221 that give you the ability to contemporaneously identify that this is a hedging transaction that you're entering into. If you do that, you can get ordinary treatment on the instrument.

Over-the-counter options are not 1256 contracts. They aren't marked to market unless they would come under this general clear reflection of income regulation. Perhaps a type of marked-to-market accounting may be an appropriate accounting method to deal with them. The general rules that deal with the treatment of options are found in a couple of revenue rulings; they are typically not going to have a realization event on an option unless there's a expiration, sale, or termination of the instrument. Typically, if you're dealing with S&P 500 options and stuff like that, you're not going to buy the underlying index. There's a part of the exercise of the option you typically are going to cash settle that type of instrument. So even the exercise of an S&P option will be a taxable realization event because of the cash settlement. To determine the character of any gain or loss, you look to the underlying property that option is giving you a right in. If the option is giving you a right with respect to an S&P 500 contract of some sort, that is a capital asset and you would have capital gain or loss treatment on that. Again, the ability to use 1221, if you're using these instruments, make the identification up-front.

Regarding over-the-counter equity swaps, there's a whole set of regulations that were issued in the early 1990s to deal with swap treatment, and it's basically required amortization. If you pay a premium up-front for this call option right on the S&P with respect to the swap that you've entered into, the rules under the regulations require you to amortize that over the period that the swap covers. So there's kind of a general amortization of the up-front premium that you would pay for that instrument. If there are periodic payments that are made back and forth under the contract, and if you simply paid those annually within your tax year, they would probably relate to that particular year and all be included in or deducted from income depending upon which way the payment was going under the contract. If you're making a payment in March and it covers a period that lapses over your year-end, you need to basically allocate that payment to the period of time that it relates to. Generally, the character of any derivative no show principal contract like a swap is going to be ordinary without having to worry about the capital asset treatment. Structured notes is a fairly complex issue under the tax rules.

There's a whole new set of contingent debt regulations that were issued within the last 12 months. Those contingent debt rules are very complex and get into a number of issues regarding how to deal with contingent payments, what the principal amount is, and yield to maturity. There are a number of very specific rules that you would get into to determine how to amortize payments that occur under those items. I think reinsurance is again, a simplifying assumption, as was just presented. You are going to determine the liabilities under the credits against your reserves, and that particular treatment within your annual statement would control taxes. There certainly are some issues with respect to back taxes and how that deals with reinsurance and the number of special rules that occur in that area. That's probably more of a nuisance than a major issue with respect to this product. Some key things to consider are whether what you're doing is the 1221 hedge, or whether you want to go through the process of making this contemporaneous identification election so that the instruments you hold will get ordinary treatment versus capital treatment. If you're using swaps, what kind of methodology would you want to adopt for the amortization method.

Under this clear reflection of income standard, and as the area develops with a little more review, I think we'll find some linkage between some methods to deal with the treatment of gains and losses on these hedging investment vehicles that will match the reserving techniques that are being used on the liability side. You will need some creativity in how you achieve that, but it will be important to come up with a methodology and to put that methodology in place and have a rationale for it for purposes of dealing with the IRS, which might come in and try to suggest your method isn't appropriate or doesn't clearly reflect income, and so on. In

conclusion, I guess you have to determine what your overall investment strategy is going to be. Are you going to use the derivatives, or are you going to use those swaps? Are you going to use reinsurance? Consider what tax selection you might utilize based upon your investment strategy and take into account your company's overall tax position in what you need to get accomplished with respect to character and timing.

**Mr. Larry M. Gorski:** I think we all agree that setting the participation rate for an equity indexed benefit is tied to the cost of an index option. Under a reinsurance approach, the dealing with equity-indexed products and derivatives seems to be transferred to the reinsurer. How will the coordination between a reinsurer and the direct writer impact the setting of the participation rate? Second, since the reinsurer is in effect managing its own portfolio of derivatives, it would seem like it would be very difficult for reinsured companies to differentiate their products based on participation rates.

**Ms. Harrington:** The first question Larry asked was how the participation rate is set when you have a reinsurance arrangement. There are a number of different ways. The way we're doing it with one customer is we are guaranteeing what the reinsurance cost will be for the coming week. We go to the marketplace and find out what the cost of the over-the-counter options are at that point in time, and with the direct writer, we figure out what that leaves them for a participation rate. We lock that in for a week, and at the end of that week, the sales that they make will be given that participation rate and they'll actually begin their participation at the end of that one week time frame. So we're taking the risk during that week it could change.

The second question had to do with if we're managing the portfolio or all the derivative programs on a portfolio basis. Won't that force all of the direct writers to have very similar participation rates? I think what we get with the portfolio approach is really a diversification of products so that the participation rate will still be driven by what it costs to purchase the options that mirror the particular design that a customer has. Because the option prices themselves vary in accordance with the formulae for calculating maturity benefits, the reinsurance cost will also vary in accordance with them. Therefore their participation rates will vary.

**From the Floor:** Yes, I was assuming that you were talking about products of similar design in terms of averaging or what have you. So all products that are seven-year a point to final average presumably would have a similar participation rate if they would use a reinsurance approach.

**Ms. Harrington:** That's true. If you have identical products, you most likely will if you use a reinsurance approach, but it depends on some other things, such as how you set required surplus levels.

**From the Floor:** Does a direct writer have any right, opportunity, or ability to select against a reinsurer at a different participation rate other than the one that the two parties have agreed to, and if it does, what recourse do you as a reinsurer have?

**Ms. Harrington:** I would say no. I don't know if I'm missing your point there, but if they set a higher participation rate, we would be guaranteeing our obligation based on the participation rate that we agreed to with them.

**From the Floor:** That might happen where there's an opportunity to set their own rate as opposed to what was agreed to with you.

**Ms. Harrington:** Do you mean, could they go out on their own rather than use the reinsurance contract?

**From the Floor:** No. Let's say, even though you suggest to the direct writer that the participation rate for this period of time for this design should be 75%, but for marketing reasons he decides to use 80% in the reinsurance contracts, does that negate the reinsurance arrangement that they negotiated with you?

**Ms. Harrington:** No, I think we're partners for the long term. There's some flexibility as far as what the participation rate is. There's a reason why you do not want to change it every time you have modest changes in the option prices. So there will be times when perhaps we're reinsuring at a participation rate that is a little bit higher than we're comfortable with, but we think there will be other instances where marketing considerations, and the stability will keep us at a participation rate that's a little lower than we otherwise could support. So overall we think we'll be fine.

**Mr. Douglas A. George:** I have a comment rather than a question. I think one of the areas that maybe wasn't completely addressed at the two sessions was the area of persistency risk. In the earlier session, we did talk about how you could get disintermediation, and that would be a risk under a high interest rate and a low-equity performance environment. But the other side of that is that under a high-equity performance environment, many of the head strategies might be anticipating higher lapse rates than might actually occur. Some of the products are being managed in a lapse-supported manner.

**Mr. Nelson:** The issue of lapses and straining the risk has not really been addressed by us yet. There are ways I think to hedge that, just as there are ways to hedge disintermediation risk on conventional deferred annuities. There are two basic problems though. The first is the cost of the hedge is usually prohibitive. If you assume the policyholder behavior is efficient, you can't write this product. The second is the complexity. Can you assume inefficient behavior as the complexity of the hedges that one needs to layer on? Charlene Barnes had a handout that might make it possible to look at the scenarios that are of concern to you and imagine the right kind of hedges. In particular, you might want to consider shorter dated zeros or coupon-bearing bonds to deal with earlier cash flows. There are certain put options on the equity market because you have a concern about what happens if the equity market goes down and there's more surrender activity.

**Ms. Charlene Marie Barnes:** I just want to say I do have the handout, but time didn't permit me to do the entire presentation at the part I session. I find that the opposite is true. Most of the companies that we're talking about are not designing lapse-supported products at all. Mostly it is seen as being kind of imprudent in general. When they are doing pricing for products and testing for products, and they put some lapses in there, some products may turn out to be a bit lapse-supported, but most companies are not using that as a way to support the product. The risk of downturns in the S&P is a very real risk. Basically there are some things you can do. There is no such thing as a perfect hedge. You do have to make some sort of assumption about what is going to happen in the market when the S&P decreases. It isn't that different than making some sort of assumption about what's going to happen with large changes in the interest rates. They will also affect this product as well as irregular products. There are ways to definitely tighten up the volatility of what can happen when there are changes in the S&P.

**Mr. Nelson:** If the market is doing well, and they're not participating at the same rate that they thought they were going to participate at, you're going to have bailouts when there is a positive movement up in the market.

**From the Floor:** The comment was more that the companies might be underhedged because they're anticipating a certain lapse range, and therefore not buying enough hedges. What might happen if they get higher persistency than they thought? The nature of this product is you could design it such that you don't get the value until the end. My point is, even with that performance, there can be a certain risk for the company. Companies are not taking a risk on just performance and the high interest rate scenario. Even under a good equity performance scenario, the fact that we're not completely hedging this product as an industry means we could be taking a lot of risk that we're not really realizing.



**Ms. Barnes:** Companies are completely hedging these products, and there are a couple of reasons for that. First, they don't want to be deemed as having a lapse-supported product. Some companies are hedging slightly less than all the participants out there. The difference is there are the assumed built-in lapses that are going to happen no matter what. They are usually a very small number and wind up being 1% of 2% for a seven-year product. I've seen that kind of thing. Most companies when they're taking lapses and mortality into account, and when I try to do the pricing for it, will still hedge 100% of the population, just because they see S&P calls as being a good investment and kind of a painless way to get a little S&P exposure for their own books. It's an issue, but I don't really think it's a problem. I think most companies are doing this very responsibly. The ones that don't hedge 100% are hedging a very large percentage of it.

**Ms. Harrington:** I would just add that the American Academy of Actuaries has a task force on EIA. Some of the guidelines the task force is putting out state the maximums on what level of annual lapse rates you could assume, and they're tying it to your reserving methodology. So if you want to use a particular type of methodology, you have to comply with certain hedging requirements.