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Return of Premium Riders Under the Microscope

Track: Health Disability Income

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Panelists: ROBERT W. BEAL
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Summary: What kind of return-of-premium (ROP) riders are being sold today? How were they priced? When were they priced? Panelists provide a summary of products in today's disability insurance marketplace containing ROP rider and current pricing and reserving issues.

MR. ROBERT W. BEAL: As you look at the disability insurance (DI) market, you see companies that are more blue collar than white collar. Within the blue-collar and middle-income markets, return of premium (ROP) and cash surrender value (CSV) riders are quite prevalent. I'd like to put these under the microscope, hopefully to remove some of the mystery around them. If we're unfortunate, we'll add a little more mystery to them and go on. Vince talks first. He will summarize the types of products that are out there and then he will discuss the results of a survey he distributed to a number of companies that have return of riders. He'll cover some of the specifics of those riders and the reserving methodologies that these companies are using. This should be very interesting, because he was even surprised by the amount of variation that exists out there in the types of ROP riders.

I will cover more of the nuts and bolts involved in pricing the riders and discuss reserving issues specific to these riders. During my part, I will be illustrating my comments using hypothetical disability income return of premium and CSV riders that I built for this session.

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

MR. VINCENT A. DEMARCO: As Bob said, we're talking about riders on disability income policies that return all or a portion of the premium to the insured. In the marketplace today, there are really two kinds of ROP riders: return of premium and CSV. I'll be outlining the features of each and then talking about the market survey results. Before I get started, I have to thank the companies that spent time talking to me about their riders, sending me information regarding their reserving techniques and distribution percentages. They filled out the surveys and sent me their rates and their product designs so we could put this together. Without their support and help, this wouldn't have happened, so I want to thank all those companies that so graciously educated me about their products.

The ROP is a percentage of premium returned less claims paid at specified intervals. Those intervals are generally five, seven, or ten years, and the percentage returned is somewhere between 50 and 80 percent. It varies, because each company has a different percentage and interval, and as you would expect, the longer the interval, the higher the percentage. Like any other disability income product, the actual contract language is very important in determining what the benefits are under the rider. For example, what is the contractual definition of premium? For some, but not all, premium is defined as paid premium including base policy and riders, but for about half of the riders out there, paid premium also includes waived premium. Claims are generally claims paid plus waived premium, regardless of whether waived premium is in the premium definition.

There are four major product considerations with regard to return of premium:

1. How to handle late notice claims. When you think about it, every five years, you're going to return 50 percent of the premium less paid claims. What happens when a claim comes in a year late? You've already paid out the return of premium benefit…what do you do now? Some companies figure it goes in the next interval, so it will get deducted in the next ROP that those companies pay. Others go back to the prior interval and actually reduce the claim payment. They will not pay the first claim payments during the second interval until they've recouped the ROP benefit they've paid at the end of the previous interval.

2. Policy expiration, or policy maturity. If you have a "To Age 65" benefit period with ROP interval of 10 years in length and the person purchases it at age 38, the ROP benefits occur at ages 48, 58, and finally 65, when the policy matures. Generally they'll consider that the end of an interval, and the ROP will pay there, so it's really 10 years less or the maturity, whichever comes first.

3. Reinstatement. What happens if during the five- or ten-year interval, the policy is lapsed for six months? Does it then extend the interval, or does it keep the interval the same, except you just pay less premium? There's no one methodology around that either.

4. Benefit payments. You can pay those in cash to the insured just like a dividend, but just like a dividend, you can leave it on deposit to be used to reduce future premiums.

What happens when benefits are greater than the premium for the period? Some will say when that happens, the future ROP is then waived, because that defines the waiver period. Others will just say that until that person recovers from claim, there is no next term, so it's five years, but if they've been on claim, the next set of five years doesn't start until they've been recovered at least 30 or 90 days.

The CSV rider is a little bit different. It returns a percentage of the paid premium less claims when the rider or policy is surrendered. The percentage of paid premium generally is a sliding scale. It starts at zero and grades to 100 percent at maturity. For all the CSVs out there, paid premium is considered both paid and waived and also includes the base policy plus any riders. Claims for the CSV are all claims paid and any waived premium during the term period.

There are four major product considerations with regard to CSV:

1. CSV percentage. The initial term period is how long there will be no return of premium. That's basically a zero percentage if you surrender, and that varies anywhere from two to five years depending upon the company, and then you have to grade that zero percent to 100 percent at age 65. The grading between companies is also extremely different. Just for example, if you sold a surrender value policy to a 35 year old ten years later, the percentage return by company can vary anywhere from 20 to 35 percent, which is a fairly significant difference, and it actually grows and then shrinks again at 100 percent, so the percentage scales are fairly different between organizations.

2. Rider versus policy termination. When is the trigger for the CSV? In other words, when do you pay the insured the CSV? Is it at rider termination or policy termination? Some companies say it's when the rider is terminated, and the rider can be terminated any time regardless of what happens with the policy. Other companies say that you cannot terminate the rider without terminating the policy. And others say you can terminate the rider and not the policy, but at that point you don't pay the benefit; you put it in a deposit fund and it earns interest. At age 65 or when the policy is terminated, you then deduct claims that incurred over the entire period, not just when the CSV rider was in force, and it's paid out at that time. So the trigger for the CSV rider can occur anywhere from when the rider terminates to when the policy terminates. If it's when the rider terminates, you have to consider the late notice claim.

3. Late notice claim. What happens if the rider or policy terminates and then you have a late notice claim? If the claim incurred before policy termination, you paid out the CSV. Most companies will then go back and reduce benefits that are due based on the amount of premiums that have already been returned.

4. Claims that exceed the ultimate surrender value. This is not actually in the policies, but at least a handful of states say that at any point when that occurs, you must terminate the rider, because at that point the insured is paying for a benefit that has no value. Just from an administrative point, when claims exceed the ultimate surrender value, or 100 percent of the premiums that would be paid over the life of the policy, you must be sure to notify the policyholder that this rider has been terminated because it has no value.

I'm now going to discuss the marketplace survey that I conducted. Before I get into the ROP and cash surrender riders, I do want to comment on some things that were similar to both. As Bob mentioned, the demographics of the ROP and CSV riders for the majority of purchases are blue-collar and gray-collar insureds.

Another thing about the demographics is that younger insureds are more likely to purchase ROP, and that also makes sense. The maximum issue age is generally 50 or 55, which limits the amount of higher-age insureds who would purchase them. But also if you look at the distribution, 18- to 30-year-olds are more likely to purchase an ROP rider than are 45-year-olds, so there is a slightly different demographic to the purchases of both the ROP riders and CSV riders.

At least four companies that returned the survey currently offer an ROP rider. Most of those riders were developed more than five years ago, and their sales have been very small. For three of the companies, 4 to 10 percent of policyholders purchase the rider. One company also offers the CSV and said even though it offers return of premium, it basically has zero percent sales.

We asked the companies about the impact on morbidity and lapses. The ROP companies said that they don't have any definitive studies that demonstrate this impact. However, most feel they have seen slightly better morbidity and a spike in lapses after the ROP payment is made. I asked two of those companies if they had seen a lower lapse rate before the ROP payment, and they thought that was probably the case.

Five of the companies surveyed offer CSV. These were priced either in the last two or three years or more than 10 to 12 years ago. And their sales volume seems to be much higher: 10 to 50 percent from one organization. Actually, the one that has the 50 percent also offers the ROP rider, and that's why he said no one buys it because they all buy the CSV.

Regarding the impact on morbidity and lapses with CSV, the companies who have experience with this said that persistency and morbidity are noticeably better with policyholders that purchase the CSV, which seems reasonable. We also asked if companies pay lower commissions on these products, and the answer was no.

Finally, we asked the companies about their reserve methodologies. Every company that I talked to reserved its ROP or CSV rider differently. The methodologies used

were generally established a number of years ago and have been handed down from generation to generation.

There are four methodologies being used. The first is the CSV—what would be paid if everybody lapsed today. This methodology does not work on the ROP that pays every five or ten years, because the payout is zero until the end of the interval. But for the CSV, which increases over time, the reserve is the benefit if everyone lapsed today.

The other extreme in the four methodologies is the pure endowment, which assumes no policy termination decrement. The present value of the benefit at the end of the five or ten years is held for reserve.

The other two methodologies fall between those two. The first is the accumulation method, which projects what the payment would be and then subtracts the expected claim. The other method is to project what the benefit is and then subtract actual claims that have already been paid.

Within those four methodologies, there were eight different variations between the six companies.

For all the companies that are using the expected future claim method, if the policy benefit is priced for a 50 percent loss ratio, they're not using 50 percent for the basis of expect claims in the ROP reserves—rather, they're using something much lower than that. There are really two reasons for that. The first is that these policies have shown a better underlying morbidity. The second is that you can only subtract claims from the ROP benefit up to the amount of the premium that has been paid. A number of insureds are going to have claim payments well in excess of the premium. Although the overall loss ratio might be 50 percent, only a portion of those claims can reduce the ROP benefit.

Every single company that I talked to has a different variation on these riders. I think it would be impossible for an agent or an insured to look at two companies' ROP or cash surrender riders, and say that one is a better economic value than the other. I know that rate comparisons occur out there, but when I sat there and looked at them, given all this, it was very difficult to say which one was a better value to the insured. It is a product that lends itself to uniqueness rather than comparing apples to apples.

MR. BEAL: Before I get into my part of the presentation, I'd like to add to what Vincent was saying. Because there are so many variations out there, it would take a very sophisticated type of spreadsheeting to determine which ROP rider had more value than the other. However, I get the impression that competing agents simply are comparing premiums.

The first things I want to talk about are the pricing considerations. This will involve:

- Morbidity considerations: If you were trying to develop an ROP or CSV rider, should you expect better morbidity from people who buy these riders?

- Persistency considerations: taking what Vincent has said and expanding on that.

- Claim offset: How can we determine how much of the benefits can be used as offsets to the accumulated premiums?

- Interest rates: which are a very significant factor here, because the CSV riders are very interest sensitive.

- Commissions and operating expenses.

I have developed a stochastically based pricing model for these riders to illustrate the pricing considerations and sensitivities that result from modifying some of these assumptions

The first consideration is the morbidity assumption. We should expect that morbidity will be less than the expected morbidity assumed in the base product. What's happening is what we should expect—those who buy an ROP rider are the ones who feel they are a little bit healthier. Even if they have valid reasons to file claims, they may be more reluctant to submit trivial claims because they will ultimately reduce the ROP payout. However, I haven't seen any studies that can validate this conjecture.

I'm the chair of the Individual Disability Experience Committee for the Society of Actuaries, which has been assigned the task of developing a new industry DI table to replace the 85 CIDA table. One of the items we asked for in the submitted data is an indicator of policies that had an ROP or CSV rider—so we might get some kind of indication if the morbidity is different on the policies with these types of riders.

In my hypothetical pricing model, I've used an 80 percent morbidity factor as a reference. If you're adjusting the incidence rates for the ROP rider, you multiply the expected incidence by 80 percent, meaning you would expect about a 20 percent morbidity improvement. I think that's reasonable, but I'm going to do some sensitivity testing around that, too, to see whether or not that's a big item. It would be nice to validate with experience studies if that's possible, but I haven't seen anyone really do that.

Are claim savings on the base product available to subsidize the rider? Assuming that the base policy was priced with an expected 50 percent loss ratio, the base policies having a return of premium or CSV rider might only have a 40 percent loss ratio. Is this 10 percent available to help offset the cost of that ROP rider? My conclusion is that this morbidity margin is not available. The rider should be self-

sufficient. In fact, if anything, that reduction in morbidity really is a conservative assumption; it will reduce your ultimate expected ROP payout because you're expecting a lower level of claims. If you do try to use the morbidity savings from the base product in the pricing of the ROP rider, you're really affecting the underlying expected profitability of the base product. You're removing profits that you thought were there, margins that you saw in the base product, and applying them to the ROP rider, so it's not adding up to the whole when you get done.

On the topic of persistency, both the ROP rider and the cash surrender riders are disincentives to normal lapsation. They give the insured a financial reason for not lapsing today but rather lapsing in another five or six years, or waiting until age 65. You should expect that lapses on policies with these riders will be lower than the expected lapses on the base policy in general. One of the things to keep in mind is that the two riders may have different types of impact on the pattern of lapses, particularly the ROP rider. You may expect a little lull in lapses occurring right before the end of the payout period—five years, seven years, whatever—and after that you're going to get a slew of lapses. You can expect a return to a more normal patent for a while, although I haven't seen that documented.

Claim offsets reduce your ROP and cash surrender payouts by how much? Experience studies would be helpful. The problem with doing experience studies is that most likely you are revising the product specifications from the in-force ROP riders, which are the basis of any ROP experience you may measure. What would the payouts have been without the claim offset versus with the claim offset? New product specifications could have a totally different impact on that payout. To answer this question, I use stochastic analysis or Monte Carlo simulations to get a reasonable representation of what those payouts and offsets might look like.

For Monte Carlo simulations, I have the model perform many random iterations, say 2,000, for each cell. A cell may be defined by issue age, benefit period, elimination period, or various combinations. Each iteration represents one randomly selected scenario. A scenario represents what could happen to the policy from the time it was issued to the time it terminates or matures. Randomly, it selects if and when there is a claim event and, if there is a claim event, how long that claim event will last. It also determines the lapse events randomly, given the expected lapses that you have for your rider. It's a different way of playing with your expected incidence and termination rates. You build them into a probability distribution table that you're using for the Monte Carlo simulation.

For each iteration, the actual benefit can be determined for either the ROP rider or CSV. For me, calculating 2,000 iterations is sufficient.

Because their payout is so much further into the future, cash surrender riders are very sensitive to the interest rate assumptions rather than the ROP riders. Both of them obviously are sensitive, but the CSV is much more sensitive, and that

probably has implications. When was the rider priced, and what were the interest rate assumptions at that time? It might be something worth looking at.

When you're pricing a new rider and you are determining your interest rates, you need to build in some element of conservatism, because interest rates could drop significantly.

Even though none of the companies on the survey indicated they actually pay lower commissions on these riders, that may be a pricing consideration. You may find it difficult to achieve the right level of expected profit margins or to reflect the implicit risk or to get the competitive premiums you want if you're paying out the standard commissions. However, if you try to do reduce commissions, you're probably going to hear an uproar from your agents, who will say, "If you're paying out an additional 40 or 50 percent for this rider on top of your base rider and you're giving me lower commissions, I could take that same premium and buy something else with it." Thus, you may have an automatic sales disincentive.

Operating expenses, such as policy administration and payment functions, may be more costly than normal. The company must track the accumulated premiums and claim benefits for each policy, either manually or automatically. When you get down to pricing and competitiveness, you may determine that there's a certain expense load that you don't want to put in here. One of the first ones to be considered is overhead. For example, if you normally build in a 10 ROP allowance for overhead, you may decide this rider does not need to carry the same weight of overhead. The other side of this is that when you price the appropriate load for overhead, all other products need to carry the full burden, and as a result, that load is higher because your ROP riders are not included. You've got to be careful making those types of decisions, but sometimes competitiveness issues may force you to do that.

Let's talk a little bit about my hypothetical riders. I developed two of them based on an actuarial model that I've developed for these purposes. In both cases, I started with incidence, termination, and lapse rates, and built a stochastic generator. Although I modeled both types of riders, they are relatively simple compared to many of the variations in the market that Vincent had discussed.

The first rider that I modeled is the ROP rider. The two main things I wanted to point out is that it returns 60 percent of cumulative premiums every 10 years or at age 65, less the paid claims. In retrospect, I think 60 percent may be competitively low for ROP riders with a 10-year period. In addition, it pays a death benefit equal to 60 percent of cumulative premiums, less claims, at the time of death.

The second rider is the cash surrender rider. This pays a surrender percentage times the cumulative premium, less paid claims. The surrender percentage starts at zero for three years and then grades to 100 percent at age 65.

My specific actuarial assumptions were as follows:

- The base product has an expected loss ratio of 50 percent
- The rider morbidity, the claim costs on the riders for policies that had riders, has 80 percent of the base expected morbidity.
- The rider lapses are 75 percent of the base expected lapses.
- The interest rate is seven percent. This was probably a better assumption earlier in the year than now. I will show the results of some sensitivity testing around this assumption.
- Commissions are 65 percent the first year and 10 percent at renewal.
- Operating expenses are 15 percent the first year and five percent of premium at renewal.
- The premium tax is two percent of the premium.

I developed the rider premiums as percentages of the base premium, which achieve a certain profit expectation. I don't want to say what those premium rates were, because every time you price these riders, it's almost a function of your assumptions and your product considerations, and whatever rates I would suggest wouldn't be necessarily meaningful for anyone's own rider. The important part of this presentation is the impact of the different variables, and we'll see the sensitivities of some of these assumptions on the profit margins. I am illustrating the results for an issue age of 35 with expected profit margins of 12 to 13 percent pretax.

Table 1 shows the variations in the value of the claim offsets as a percentage of the ROP/CSV benefit before the claim offset. These results were generated stochastically, using 2,000 random iterations for each one of these situations. In the top block of results in Table 1, you can see how the CSV offset percentages vary by policy year. As you would expect, the longer the duration, the older the people are getting, and the claim offsets are increasing as a percentage of the payout.

Table 1
Pricing Considerations - Hypothetical Riders

Sample Claim Offsets – Issue Age 35
Percentage of Claim Offset to ROP/CSV Benefit Before Offset

CSV Rider

Policy Year	30-Day To 65	90-Day To 65	30-Day 24-Month	90-Day 24-Month
10	8%	2%	11%	5%
20	11%	7%	20%	17%
30	24%	19%	38%	22%

ROP Rider

Policy Year	30-Day To 65	90-Day To 65	30-Day 24-Month	90-Day 24-Month
10	6%	4%	14%	6%
20	14%	8%	9%	11%
30	26%	19%	37%	18%

As you extend the elimination period from 30 days to 90 days, you would expect those ratios would go down. If you go from a "To Age 65" benefit period to a 24 month in Table 1, you see the claim offset percentages go up because the claim benefits are not as spread out over time as they are with the "To Age 65" benefit period. Again, what you get for claim offsets depends on your own product specifications. In general, the results in Table 1 were lower than what I normally would have expected going before I began. Only so much of the actual claim payments will offset the cumulative premiums because once you're into negative territory, the next claim payment isn't going to reduce your CSV benefits any more.

The lower block in Table 1 shows the claim offset percentages for the ROP rider. These are different percentages from the CSV, as you would expect when accumulating premiums over different time periods. Now, keep in mind that these results are stochastically generated, so if you tried to produce them again you would expect some differences from these results. However, I think the Table 1 results are fairly representative what you would obtain.

Table 2 shows the profit expectation I was getting for an issue age of 35, with a 30-day elimination period and a "To Age 65" benefit period on a present value basis.

Table 2

Pricing Considerations - Hypothetical Riders

Profit Expectations (as Percentage of ROP Premium)
Present Values at 7% - Percent of Premium
Based on Issue Age 35, 30 Day EP, To 65 BP

Present Value of	ROP	CSV
ROP Premiums	100%	100%
Benefits	61%	60%
Commissions	19%	19%
Expenses	8%	8%
Profit Margin	12%	13%

Everything is based on a percentage of the rider premiums. The benefits under both types of riders are pretty close (60 to 61 percent), and the profit margins are 12 to 13 percent. These look like healthy products.

But let's do some sensitivity testing around the rider morbidity as shown in Table 3. What happens if you change the expected morbidity on the riders from 80 percent to 60 percent, so you're assuming fewer claims benefits? Does that have a significant impact on your profit margin? In this case, going from 80 percent to 60 percent with the CSV rider, the benefit ratio went from 60 percent to 63 percent, knocking off three percent of the profit margin. To me, that means these riders are not supersensitive to your choice of morbidity. The benefit ratio even seemed to be less sensitive under the ROP rider, going from 61 percent to 62 percent. These small changes indicate that you're going to get a little bit of an increase in the benefit ratio, but not necessarily dramatic, so maybe your choice of the expected morbidity relative to the base product is not a big area of concern when pricing these riders.

Table 3

Pricing Considerations - Hypothetical Riders

Sensitivity Testing – Rider Morbidity

Expected Morbidity	80%	60%	80%	60%
Present Value of	Morbidity	Morbidity	Morbidity	Morbidity
ROP Premiums	100%	100%	100%	100%
Benefits	60%	63%	61%	62%

Table 4 illustrates the sensitivity of the profit margins to the interest rate assumption. I priced using a seven percent interest rate. What happens when you use interest rates of six percent and eight percent? With a CSV, the profit margin ranges from 3 to 20 percent, so the CSV rider is very sensitive to that interest rate. If your profit margin is defined as an internal rate of return, the interest rate has an even more noticeable impact on results.

Table 4

Pricing Considerations - Hypothetical Riders

Sensitivity Testing – Interest Rates

Alternative Interest Rate Scenarios for CSV Rider

Present Value of	6%	7%	8%
ROP Premiums	100%	100%	100%
Benefits	70%	63%	53%
Commissions	19%	19%	19%
Expenses	8%	8%	8%
Profit Margin	3%	10%	16%

Alternative Interest Rate Scenarios for ROP Rider

Present Value of	6%	7%	8%
ROP Premiums	100%	100%	100%
Benefits	65%	61%	57%
Commissions	18%	19%	19%
Expenses	8%	8%	8%
Profit Margin	9%	12%	16%

The return of premium rider, though, has a much shorter liability duration. The profit margin drops from 12 percent down to nine percent assuming the six percent interest rate; or up to 16 percent assuming the eight percent interest rate. Thus, the ROP rider is much less sensitive to the interest rate assumption than the CSV rider.

Table 5 illustrates the sensitivity of the profit margins to the persistency or lapse assumptions. I started out with 75 percent of expected base lapses and tested what would happen if it went down to 50 percent, or what if the riders had no impact on

persistency and stayed at 100 percent of the base product lapses? Again, the CSV is much more sensitive to the lapse assumption than is the ROP.

Table 5

Pricing Considerations - Hypothetical Riders

Sensitivity Testing – Persistency

Expected = 75% of Expected Base Lapse Rates

	CSV Rider			ROP Rider		
Present Value of	50% Base Lapses	75% Base Lapses	100% Base Lapses	50% Base Lapses	75% Base Lapses	100% Base Lapses
ROP Premiums	100%	100%	100%	100%	100%	100%
Benefits	86%	60%	42%	71%	61%	51%
Commissions	17%	19%	21%	17%	19%	21%
Expenses	8%	8%	9%	8%	8%	9%
Profit Margin	-11%	13%	28%	4%	12%	19%

Now, I'm going to show you some scenarios for the ROP rider in which I looked at a completely different patent of expected lapses. What happens to the lapse scenario before the payout period? Remember, I have 10-year consecutive payout periods. The lapses are less than expected, but assume that those who held on, who normally would have lapsed, lapsed the year after they received their ROP payment. What's the impact here?

The graph on the left of Chart 1 illustrates the impact on persistency. The red is the expected termination rates at the 75 percent level. Alternatively, I've assumed that only 50 percent of the lapses before the payout would actually occur, and those additional policies that didn't lapse, would lapse in the beginning of the 11th year. You see what happens to the persistency patent. That's not an unlikely scenario, given the structure of this product and given some of the anecdotal information from companies that have this type of rider.
Table 6 shows what happened to the expected profitability of the ROP rider under the alternative lapse scenario. The profit margin went from 12 percent down to 3 percent. That's a very big impact, so the conclusion is that you should try to understand the true underlying lapse pattern associated with your ROP rider.

Table 6

Pricing Considerations - Hypothetical Riders

Sensitivity Testing - Persistency
Alternative Lapse Scenario for ROP Rider

ROP Rider Present Value of	Expected	Alternative
ROP Premiums	100%	100%
Benefits	61%	78%
Commissions	19%	17%
Expenses	8%	8%
Profit Margin	12%	-3%

Let's move on to reserving issues. I want to talk about my interpretation of the National Association of Insurance Commissioners (NAIC) model regulation requirements as they apply to ROP/CSV riders, some alternative reserving methodologies, and then, using my hypothetical riders, show some comparisons around possible reserve methodologies.

What does the model regulation tell us? As shown in Table 7, this model hits you where it hurts. Whoever wrote this knows that these products are very sensitive to termination rates. You're allowed to use your pricing termination rates rather than the 1980 CSO mortality or 1958 CSO, whichever applies, but you're not allowed to use all of the termination rates. Policy termination rates may be used in excess of the valuation mortality rates, but those termination rates may not exceed the greater of eight percent or 80 percent of the termination rates used in the calculation of gross premiums. If you had assumed in a year that you had, say, a 15 percent lapse rate in your pricing, you really could only use an 8 percent for reserving purposes.

Table 7

Reserving Issues – NAIC Model Regulation Requirements

Statutory Minimum Reserve Requirements:

- Policy Termination Rates may be used in excess of the valuation mortality rate, but they may not exceed the greater of (1) or (2):
  - (1) 8%
  - (2) 80% of the termination rates used in the calculation of the gross premiums

Another requirement is that a reserve method can be a two-year full preliminary term (FPT) if the benefits incur on or after the 20th anniversary of the policy; otherwise it's a one-year FPT. My interpretation is that if you have CSVs payable upon surrender before 20 years, the one-year FPT reserve method applies. Even if the CSV prior to 20 years is only a death benefit, the reserve method cannot be the two-year FPT—it must be the one-year FPT.

There is no minimum requirement in the model regulation regarding the ROP or CSV of benefits or the claim offset. For adequacy purposes, I would suggest you base your assumption on experience studies, stochastic modeling, or Monte Carlo simulations to develop reasonable claim offset assumptions. You can do everything else right, but if you're assuming an offset of 40 percent and really15 percent, then your ROP/CSV reserves may be inadequate

What are some of the alternative reserve methodologies? One, which I refer to as rider value, is equal to what the current ROP or CSV benefits are. If they could rightfully terminate today, what would the benefit be? In case of ROP riders that pay out only at the end of specific intervals, we would look at the cumulative premium less cumulative claim benefits, although the payout would be deferred.

Another one is to look at the present value of an endowment for the projected payout at the time of the next payout for ROP riders or at maturity for CSV riders. In my hypothetical ROP rider, we're talking about endowments over the remainder of the ten-year period. With a CSV, we assume an endowment with a payout at age 65.

Do the alternative reserve methodologies satisfy the statutory minimum requirements, and are they adequate? As we know, statutory minimum reserves are not necessarily adequate in this world of DI. We used think that was how it was; that's what we were taught, but it doesn't always necessarily apply, so we should test that out.

Chart 2 illustrates possible reserves for an ROP rider based on projections using my model. I'm assuming an issue age of 35, a 30-day elimination period and "To Age 65" benefit period.

You can see that during every ten-year interval, reserves are growing and then dropping off as the ROP benefits are paid. What's happening with the gross premium reserve? The gross premium reserve is the present value of future expected benefits and expenses less premium. At the end of ten years, it actually is negative. Just for comparison purposes, I'm showing negatives in here, although you may not be able to actually have negatives. The endowment and the rider values (i.e., the current payout benefit) are above both the gross premium reserve and the NAIC statutory reserves, and the NAIC stat reserves is above the gross premium reserve, which is good news.

The endowment is much closer to the NAIC stat reserve. It's a little bit higher, and the rider value itself is probably much higher, so it's much more conservative. I think these relationships are consistent for all three ten-year periods I have illustrated here. Thus, if you find the NAIC stat reserve methodology difficult to calculate, maybe you could do an endowment methodology. I think the endowment methodology is conservative but a simpler method of calculation.

What happens under an alternative lapse scenario for the ROP rider (Chart 3)?

All of a sudden now, reserves don't emerge quite as nicely. Maybe the endowment is the reserve of choice here. I'm not proposing that, but in this critical situation, it certainly has some benefits to it.

Let's look at projected reserves for the CSV rider. Chart 4 compares the gross premium reserve to the NAIC stat reserve, endowment methodology, and surrender value.

The endowment methodology assumes a level premium for that period of time under a one-year FPT using mortality and interest. This is a different picture altogether. The NAIC stat reserves are above the other reserve options. At the bottom is the surrender value, and right off the bat you know it's not going to work because you'd expect the NAIC stat reserve to start developing reserves after one year because it's a one-year FPT method, but the surrender values are zero because of the rider design. The gross premium reserves are the next highest reserves, and the endowment reserve is above the gross premium reserve most of the time. Generally the endowment reserves are not a bad fit in terms of the gross

premium reserve and overall adequacy, but they fall under the NAIC stat reserves, as I have interpreted them.

Because this CSV rider is so sensitive to interest rates, let's see what happens to that gross premium reserve by reducing the interest rate from a seven percent assumption to six percent (Chart 5).

The endowment reserve—ignoring its relationship to the NAIC stat reserve—is still not a bad fit for half the time. But when you get beyond 12 to 15 years, the endowment reserve falls below the gross premium reserve, so you may have some inadequacy concerns developing with the endowment methodology over the long term. The NAIC stat reserves certainly appear adequate in this situation.

In Chart 6, I was looking at what could happen to the CSV reserves under a different lapse assumption—moving from a 75 percent lapse assumption to 50 percent.

The NAIC stat reserve is actually a little bit below the gross premium reserve in this situation initially, but it catches up and goes above it after five or six years. The endowment reserve is below the gross premium reserve and the NAIC stat reserve, so it may be a very lapse-sensitive type reserve. If your lapses are actually much better than you originally assumed in your pricing, you might have some adequacy issues developing.

MR. FRANCIS YAW BERKOH NKETIA: My question is, what was the relationship between the rider premiums and the base premium? Was it 50 percent of the base, 25 percent?

MR. DE MARCO: In the survey, we purposely did not ask that question, partly because the riders are so different, so maybe 35 percent is good for one company and 60 percent is good for another company.

MR. BEAL: It was getting too close to potential antitrust issues if we tried to compare premiums. We would be suggesting, particularly in line with any hypothetical model results, what would be good or bad, and we could get into trouble. It's a good question, though. I think it's something we'd all like to know.

MR. KEVIN P. FARLEY: In the past, I've seen the implicit rate of return that the policyholder would be earning on these ROP riders. Did you get any information along those lines? From general marketing materials, I believe that some of it's been out there in the market. It's hand in hand with the percentage of premium or what you're charging, but did you get a feel for what the policyholder would be earning?

MR. BEAL: Are you assuming that there were not any claim offsets?

MR. FARLEY: Yes, if they got their ROP.

MR. DE MARCO: That's a good question, but we didn't ask for marketing materials, which would suggest an implicit rate of return for policyholders.

MR. BEAL: That would be a fairly straightforward calculation in terms of the payout period and the percentage. I can see how it has been used as a sales tool to promote the benefits of the ROP or CSV riders.

MR. CHARLES J. SHERFEY: I'm a consulting actuary, and I have several questions. First, this program apparently didn't distinguish between noncancellable or guaranteed renewable plans. Could you comment on that and what issues come up when you change rates? Also, are any of these offered on an attained age rating basis—in other words, non-level premiums, perhaps professional association group-type disability coverages. And finally, just a point of clarification on your last five graphs. Could you tell us what the Y-axis is there? I'm not sure what that means.

MR. BEAL: Yes, the Y-axis represents the actual reserve that was emerging, the dollar reserve in the model. The actual rate is not important. The model was projecting what the reserves would be at each duration, and so it's dollar amounts, if that's helpful. Regarding the other question, noncancellable versus guaranteed renewable. I didn't really get into that, but that's an interesting question. I think a lot of the policies are guaranteed renewable. Can you adjust the ROP rider percentage by itself? Probably, if you think the experience can be justified. Whether companies do or not, I don't know, but you have raised an interesting point, though. If the base premium is going to get a rate increase, the ROP or CSV benefit goes up.

MR. DE MARCO: One last question: he asked about attained age. There are companies that offer these riders on an attained age basis; at least a handful of the companies have yearly renewable term rates.

MR. BEAL: And age banded?

MR. DE MARCO: Age banded, and you just apply the percentage to the current age rate.

MR. SCOTT MUNSE: We had sold ROP riders on both these types of plans on guaranteed renewable products. We also sold them on cancer-type products, as well as disability income. We had an enjoyable exercise in doing a rate increase on our cancer product, which was guaranteed renewable. It is very instructive to go through on the ten-year ROP rider. I can't even recall what we did, because it was so complicated. We determined a new duration to use in our reserving method. In fact, we used a new reserving method, because it depended on what duration each policy was in at the point of the rate increase to calculate an appropriate reserve that matched up with what the actual payout was going to be.

MR. JEFFREY MORRIS: Bob, I just had a question on your rather emphatic "no" to the question, "Are claim savings on base product available to subsidize rider?" Could that possibly result in lower loss ratios and perhaps even lower-than-minimum standards?

MR. BEAL: On the base policy?

MR. MORRIS: I guess for the overall package.

MR. BEAL: If you take it into account, I guess I'd be surprised if you're going to get lower than a stat minimum loss ratio on the ROP rider itself. Either way, by taking it into consideration or not taking it into consideration, I think you'd satisfy the statutory minimum loss ratio.

MR. MORRIS: If the base product was priced for 50 percent expected loss ratio, and when you price the rider you're assuming 80 percent morbidity, wouldn't that mean that the base policy was going to come in at 40 percent?

MR. BEAL: The way I look at it, when you go to price it, you're starting with a population of people who would buy the disability income policy—and within that you have a subpopulation who will buy the ROP rider. So what happens is that those who buy the ROP rider may achieve a40 percent loss ratio, and those that don't may have a higher than 50 percent loss ratio. On average, you're going to come up with a 50 percent loss ratio. My concern is that on those with a 40 percent, if you factor that 10 percent savings into the pricing of the return of premium rider, you've removing that savings from the expected profitability of the overall base policy.

MR. MORRIS: What you're saying is, when you price the base policy, you have to contemplate the attachment of the rider ahead of time?

MR. BEAL: No, just as you price it, you assume 50 percent. You don't have to worry about when you price the base policy, but when you go to price the rider, you'll assume that those who do purchase it will have a lower morbidity, and, therefore, you're going to need theoretically higher premiums on the ROP rider.

MR. DE MARCO: You have two ways. You have a cohort that's going to buy your base policy. If you add an ROP, how are you going to change that cohort? Who's going to buy a base policy? In other words, normally you sell 100 policies a year and they have a 50 percent loss ratio. If you add an ROP, are you going to change that 100—the 100 people that you normally sell your disability income to? Would you then lower your base loss ratio on your product, or would the cohort be the same and you'd have some anti-selection with who purchases the ROP rider?

Those are really two different schools of thought on what would happen when you add an ROP. Under one school, it appears that when you add an ROP rider, it

doesn't change your base morbidity. You still have the same 100 people that you would sell it to, except the four or the ten that purchase the ROP rider are healthier of than the rest. In the majority of companies, it is a very small percentage of their overall sales, so if it's four or five percent of your sales, it's not going to have a dramatic impact on your base morbidity anyway. Even if you belong to the school of thought that, yes, you're going to sell 103 policies, not 100, your overall base morbidity is probably not going to change.

MR. MORRIS: The other thing, Vince, is I think not only do you have the possibility of getting a different population at issue, but certainly if you're going to have lower lapse ratios or lapse rates because of the rider, your morbidity will improve over time so you have sort of a different population going forward.

MR. DE MARCO: I agree. The other thing is that the loss ratio on the ROP rider is generally higher than the base. If you'll go back to Bob's slide, he was assuming a 60 percent loss ratio on the return of premium piece and a 50 percent loss ratio on the base. So even when you look at your whole portfolio, you've added some premium at a higher loss ratio, and when you look at your overall loss ratio, have you then increased it?

MR. MORRIS: We sell quite a bit of ROP with supplemental-type products and we do see lapse rates getting pretty close to zero as you approach the maturity periods.

MR. BEAL: Are they fairly normal starting out and then they go right down to zero? Are you saying it's like an ROP as we define it, or CSV?

MR. MORRIS: In both cases, we see pretty much the same type of loss rates in the first couple of years, and then it slowly grades real close to zero.

MR. BEAL: I want to point out one thing. You're mentioning the impact of the persistency. With better persistency, you're likely to get better morbidity, but you also get higher lifetime loss ratios as a result of the present value calculation. I think the impact of better persistency is probably greater than the impact of better morbidity on that calculation.

MR. VINCENT C. HERR: I'm with Century United Life in the Manhattan Insurance Group, and we've acquired one or two cancer blocks a year for the last five or ten years. A couple of them had a lot of the CSV type of riders, 20-year instead of age 65, like maybe you're talking more with disability income, and the persistency is bigger—I agree with you. Similar lapse rates may be with Family Heritage in terms of the first couple of years, but most years' lapse rates for the people with the riders are under half the lapse rates, and that's based maybe on 25,000 riders.

MR. MORRIS: They were selling cancer products, mostly, and 10 percent would take the rider. That's a small amount, but it's significant when you're looking at a block of business. It makes a big difference.

MR. CARL LOEFFEL: I know at least one underwriter who, if he has a substandard risk, might compromise things and say, "I'll issue this policy if takes an ROP rider." Is there any evidence of that in underwriting?

MR. BEAL: I've heard of that practice before. I don't know how prevalent it is, but it's interesting.

MR. LOEFFEL Another point I forgot to address was on the claim offset provisions. On the bigger piece of cash surrender riders, we had the claim offset provision, and with cancer we had a small incidence rate with high-amount claims. That claim offset doesn't save you very much money. Maybe for the people with the rider, if I paid out a dollar in claims, it might have taken off a quarter of the rider value ultimately paid out, so it was brought into some companies as a way to make that profitable, and I don't think it turned out that way.

Chart 1

Pricing Considerations - Hypothetical Riders

Sensitivity Testing – Persistency

An Alternative Lapse Scenario for ROP Riders

Assume that some portion (e.g., 50%) of the expected lapses during each 10 year term postpone lapsing until after they receive their ROP benefit.

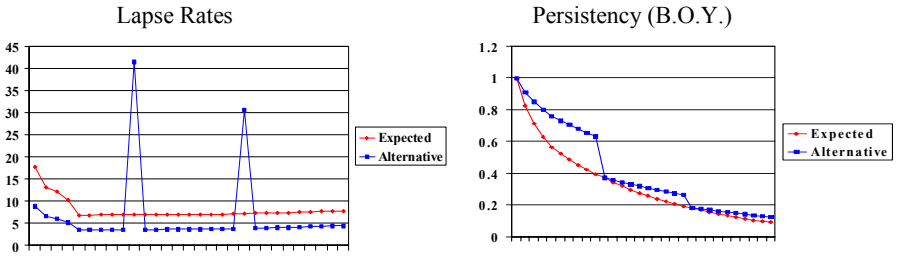

Chart 2

Hypothetical ROP Rider – Reserve Projections

Based on Expected Lapses (i.e. 75% of Base Lapses)

Endowment based on Statutory Mortality and Interest

- NLP later terms
- 1 Yr FPT first term

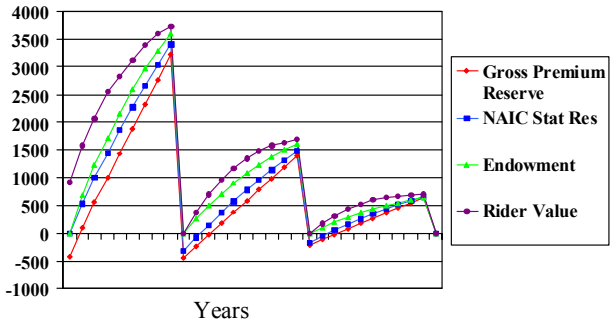

Chart 3

Hypothetical ROP Rider – Reserve Projections

NAIC Stat Reserves based on Expected Lapses (i.e., 75% of Base Lapses)

Actual lapses = Alternative Lapse Scenario

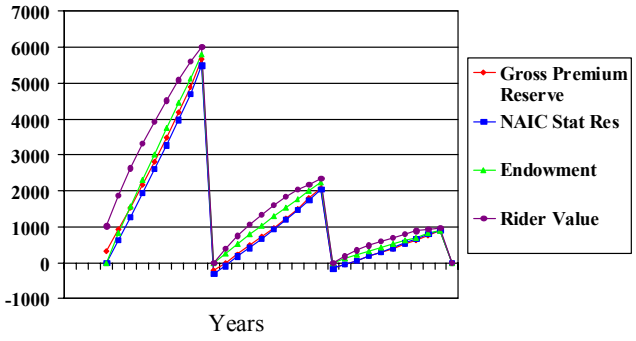

Chart 4

Hypothetical CSV Rider – Reserve Projections

Bases on Expected Lapses (i.e., 75% of Base Lapses)

Endowment Based on Statutory Mortality and Interest – 1 Yr FPT

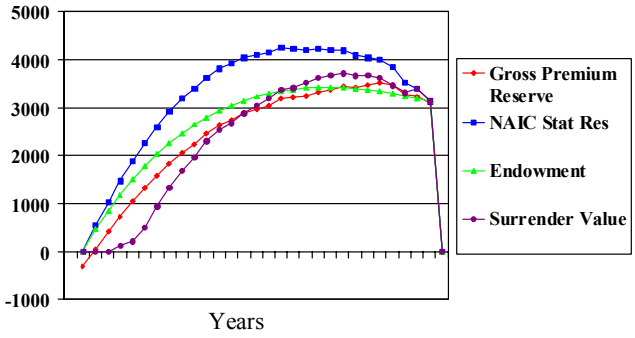

Chart 5

Hypothetical CSV Rider – Reserve Projections

NAIC Stat Reserves based on Expected Lapses (i.e., 75% of Base Lapses)

Actual Interest Rate = 6% (vs 7% assumed in pricing)

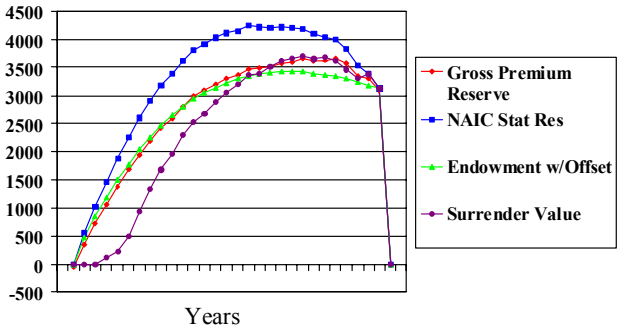

Chart 6

Hypothetical CSV Rider – Reserve Projections

NAIC Stat Reserves based on Expected Lapses (i.e., 75% of Base Lapses)

Actual Lapses = 50% of Base Lapses