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# STOP LOSS PRODUCT RESERVING: RESERVING FOR STOP LOSS IN A SOFT MARKET

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**S**pecific and aggregate stop loss insurance (reinsurance) is a product that has unique characteristics. The product is a special type of policy that covers employers or their self-funded employee benefit plans for larger health claims. The product has some unique reserving challenges for the health/reinsurance actuary because:

• Few claims are paid during the first six to eight months of a policy year,

• Most claims are reported within three to four months of the close of a policy year, and

• Changes in underlying healthcare costs and market pricing result in loss ratios that fluctuate for a block from year to year.

Due to the above factors, the GAAP financial statement reserves from one year to the next can develop substantial gains or losses depending on the reserve approach and emerging loss ratios. With that in mind, below is a discussion of the different approaches.

## Reserve Methods

In stop loss reserving, I have seen two different basic methods for determining claim incurral dates.

1. **Incurred Claim Method**
   Stop-Loss claims are reserved as incurred in the month that the service was provided for each amount that becomes paid for a claim. This approach is similar to setting claim incurral dates for fully insured medical.

2. **Underwriting Year/Risk Attaching Method**
   Sets the incurral date for all claims back to the month that the underlying policy attached (i.e., the first month of the policy year). Since stop loss is a reimbursement contract insuring a self-funded employer, the date on which the underlying claim is expensed is technically not important.

## IBNR Approaches

Within each of those two methods are two approaches for setting reserves for claims that have been incurred but not reported (IBNR). The approaches differ based on how known claims are handled.

• *IBNR Predominant Approach:* Most of the IBNR is based on a formula method. Generally a small part includes an explicit amount added for a very limited number of large known claims. Technically, then, IBNR under this approach provides for claims that have been incurred but not paid.

• *Open Claim Reserve plus IBNR Approach:* The claim examiner sets up a claim reserve for any future claims that will be paid for any existing or potential claimant during the policy year. The IBNR, at a lower level than the IBNR predominant approach, is calculated by a formula method and is set to cover the rest of the claim liability.

Actually either approach can be used with either of the two methods. My preference is to use the underwriting year/risk attaching method with the IBNR predominant approach. From a reinsurer's standpoint, it is more difficult to receive consistent and timely information on each claimant, which is required to effectively use either the other approach or the other method.

## Reserve Practices for a Reinsurer Compared to a Direct Writer

The following are some of the reserving challenges and issues that an actuary at a stop loss reinsurer has compared to a direct writer of stop loss.

First, the reinsurer has a greater lag time in receiving claim information. Activity may not be reported to the reinsurer until 30 to 60 days after a month ends. A direct writer will have claim data online that can easily be accessible.

Second, a reinsurer will have multiple programs, each having its unique claim paying characteristics. Generally a direct writer will have one source, either internally or externally, handling all of its claim payments.

An advantage that an actuary at a reinsurer may sometimes have is the ability for better communication with the claim payers at several small entities. An actuary at a direct writer who is in a corporate reserving function for a larger entity sometimes lacks good contacts within the company's claim department.

## Reserving in the Stop Loss Cycle

From the late 1960s to the early 1990s, a six-year underwriting cycle was experienced for health and stop loss. The cycle was lengthened in the 1990s due to a profitable period that extended into the mid-1990s driven by a lowering of medical trend. The unprofitable period that followed began in 1996 and extended into 2000. The down cycle was lengthened by a rising medical trend offsetting corrective rate actions that began in late 1998 and 1999.

The cycle still exists due to market influences. The combination of changes in medical trend and market forces creates an underwriting cycle that results in the average loss ratio through a cycle that can vary by ± 10 percent to 15 percent of premium from year to year. Since stop loss is a high deductible product and it takes 14 to 16 months after a policy is effective to have a good picture of the actual incurred claims, reserving is subject to periods running out either positively or negatively.

The expectation in 2005 is that the market has entered the down part of the health cycle, also known as the "soft market." In such times, developing sufficient reserves for the stop loss product can be more challenging for the reserving actuary.

The constraints in the reserving process are:
- U.S. GAAP Requirement: Reserves should be based on a best estimate and do not require an explicit margin for adverse deviation.

- Risk of Understating Reserves is Worse Than Overstating: If reserves are understated, the actuary is providing a message that the business is more profitable than it really is, which may create additional unprofitable activities by the company. By so doing, additional charges to earnings will result at a future date when reserves are corrected.
- Develop Appropriate Earnings Patterns: The method should minimize unusual gains or losses on reserves from year to year, and it should not unduly influence calendar year financial results.

There are two axioms and corollaries in the stop loss reserving process:
*Axiom 1:* Nothing is as bad as it seems.
*Corollary 1:* Recent losses will result in significant rate and underwriting actions, which will improve the loss ratio.
*Axiom 2:* Nothing is as good as it seems.
*Corollary 2:* When loss ratios are good, the focus is to gain market share which leads to lower rate increases and resulting higher loss ratios.

With these axioms and corollaries in mind, the objective of the GAAP financial reserving process is to develop an approach that: 1) minimizes the opportunity to be under-reserved 2) provides realistic year-to-year financial results and 3) meets GAAP reserve requirements.

## The Challenge

The following depicts a hypothetical stop loss block. The ultimate loss ratio is the loss ratio that develops for the underwriting year. The underwriting year includes 12 months of premium and claims from the effective date of coverage that is ultimately paid for policies that have a policy year beginning during the calendar year.

| Underwriting Year | Ultimate Loss Ratio |
|---|---|
| 1997 | 70% |
| 1998 | 75 |
| 1999 | 80 |
| 2000 | 75 |
| 2001 | 62 |
| 2002 | 58 |
| 2003 | 64 |
| 2004 | 70 |

For business that was sold or renewed more than 12 months from the valuation date, claim lag factors can be applied to the incurred and paid claims. The claim lag factor will normally grade from around 50 percent at 12 months after the anniversary date to close to 100 percent for accounts that are 18 months from the anniversary date. The lag factors developed by month can be based on empirical claim studies.

The most critical part in stop loss reserving is, therefore, setting a reserve for business sold and renewed during the latest 12 months. This will account for 80 to 90 percent of the stop loss IBNR reserve. For this portion of the block, the incurred and paid claims comprise only a small percent of the incurred claims that will ultimately be paid for the policy year. Therefore, for the latest 12 months, some method is needed to set a loss ratio for reserving. This is called the *Set Loss Ratio*.

## Case Study

The following is presented assuming an underwriting year/risk attaching method is used with the IBNR predominant approach.

In such case:

> IBNR = (Set Loss Ratio x Earned Premium) minus Paid Claims to date (plus additional margin/known claim reserve as determined.)

Let's create a scenario where an actuary is reserving for a reinsurer (or carrier) with a $100 million block that has total expenses of 27 percent of premium. For any underwriting year, $80 million of premium has been earned by the end of the year, with the remaining $20 million earned during the following calendar year.

Let's define four approaches for setting the set loss ratio:
- *Break-even Loss Ratio:* At end of year for current underwriting year, reserved for break-even loss ratio (i.e. 73 percent) on an underwriting basis.
- *Modified Break-even:* Reserved for break-even if recent emerging results are favorable, otherwise reserve for a small underwriting loss.
- *Past Performance:* Set reserve for current year based on loss ratio equal to what emerged for prior underwriting year.
- *Modified Small Profit:* Set reserve for a small underwriting profit if recent emerging results are favorable, otherwise reserve for a small underwriting loss.

So the case study is this: you are the actuary reserving for the above program and must pick one of the four above methods for reserving. You are to test the approach on historical data for the period 12/31/1998 to 12/31/2003.

For the 1999 underwriting year your block had an ultimate loss ratio of 80 percent (assuming all claims have been paid). For the 2000 underwriting year,

Table 2

| Und. Year | Premium in $M | | Ultimate Loss Ratio | Set Loss Ratio Methods to Reserve Current Year | | | |
|---|---|---|---|---|---|---|---|
| | Ultimate | Earned at end of Current Und. Year | | Break-even Loss Ratio | Modified Break-even | Past Performance | Modified Small Profit |
| 1997 | $100.00 | $80.00 | 70.0% | 73.0% | 73.0% | 70.0% | 70.0% |
| 1998 | $100.00 | $80.00 | 75.0 | 73.0 | 73.0 | 70.0 | 70.0 |
| 1999 | $100.00 | $80.00 | 80.0 | 73.0 | 73.0 | 75.0 | 75.0 |
| 2000 | $100.00 | $80.00 | 75.0 | 73.0 | 73.0 | 80.0 | 75.0 |
| 2001 | $100.00 | $80.00 | 62.0 | 73.0 | 73.0 | 75.0 | 73.0 |
| 2002 | $100.00 | $80.00 | 58.0 | 73.0 | 73.0 | 62.0 | 70.0 |
| 2003 | $100.00 | $80.00 | 64.0 | 73.0 | 73.0 | 58.0 | 70.0 |
| 2004 | $100.00 | $80.00 | 70.0 | 73.0 | 73.0 | 64.0 | 70.0 |

you know that corrective rate action took place, but due to medical trend, you would have been unsure how much the rate increases would impact the 2000 loss ratio. The choices on how to reserve for 2000 as of 12/31/2000 are listed under the four columns. Only a year later, as of 12/31/2001, would you be able to know that the 2000-underwriting year developed at a 75 percent loss ratio.

Three years later, at 12/31/2003, the 2002 underwriting year has developed a loss ratio of 58 percent. For 2003, you know that rate increases were not as high as for 2002, but there again, medical trend was less. The choices on how to reserve for 2003 are listed under the four columns. After 12/31/2004, we know that the loss ratio for 2003 developed at 64 percent, a very good loss ratio but higher than 2002.

## Answer

There are likely many ways to consider. I present one way. Table 3 develops a reserve gain/loss by year for each of the loss ratio methods. The best solution is the method that meets the objectives discussed earlier and minimizes: 1) the amount of loss on reserves in a year and 2) the number of years with a loss on reserves. Therefore the "winner" in the below is the "modified break-even" method.

## Caveats/Disclaimer:

- The above is a more of a macro look at stop loss reserving and the impact on reported earnings. It did not try to focus on the micro issues.
- The above assumes that the actuary does not have strong evidence to reserve for higher losses in the bad years or better loss ratios in the good years.
- Table 4 does not discuss the need and way to handle deficiency reserve for an underwriting year that is reserved for a loss.
- The above generally applies to the specific excess of loss risks. The aggregate cover is generally less than 10 percent of total premium and should be reserved assuming a longer lag compared to specific excess. The technique with using the set loss ratio can be similar to that used for specific.
- Finally, any reserving approach should be reviewed with the appropriate internal and external audiences. ✸

Table 3: Reserve Gain/Loss by Method ($ are in Millions)

| Calendar Year | Modified Small Profit | Past Performance | Modified Break-even | Pure Break-even |
|---|---|---|---|---|
| 1998 | $ (4) | $ (4) | $ (2) | $ (2) |
| 1999 | $ (4) | $ (4) | $ (4) | $ (6) |
| 2000 | $ – | $ 4 | $ – | $ (2) |
| 2001 | $ 9 | $ 10 | $ 9 | $ 9 |
| 2002 | $ 10 | $ 3 | $ 12 | $ 12 |
| 2003 | $ 5 | $ (5) | $ 7 | $ 7 |
| 2004 | $ – | $ (5) | $ 2 | $ 2 |
| Average | $ 2.2 | $ – | $ 3.5 | $ 3.1 |
| Maximum | $ 10 | $ 10 | $ 12 | $ 12 |
| Minimum | $ (4) | $ (5) | $ (4) | $ (6) |
| Years with Gain | 3 | 3 | 4 | 4 |
| Years with Loss | 2 | 4 | 2 | 3 |

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