



CALCULATING A LOSS RATIO FOR
COMMERCIAL UMBRELLA

CARe, Philadelphia, PA June 6-7, 2011

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2

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3

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EXCESS SEVERITY TREND
AGGREGATE METHOD ISSUES



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Severity Trend
Aggregate Method

With the Aggregate Method, experience rating is performed using only the aggregated excess/umbrella claim values.

What needs to be considered when trending historical umbrella losses?

- 1) The leveraged impact of trend, due to:
 - a) the lack of underlying attachment point for each umbrella claim
 - b) claims below the umbrella attachment point that would trend into the layer
- 2) Capping trended losses at umbrella policy limits

Given the lack of granularity in aggregate data, we cannot trend "from ground up" and precisely calculate penetration in the umbrella layer.

5

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Severity Trend
Aggregate Method

Issue

How do we get around these weaknesses of the aggregate method/data?

Solution

Adjust the "ground up" trend factors for the impact of leveraged trend by applying a "leverage factor".

- Leverage factors can be based on a comparison of expected layer losses from size-of-loss distributions in exposure rating on a current and detrended basis.
- ISO's Mixed Exponential distributions can easily be adjusted for trend by re-scaling the exponential means.

6

Severity Trend
Aggregate Method


The leveraged trend is calculated as the ratio of the expected excess layers:

$$\text{Leveraged Trend} = \frac{LEP(L + AttPt)_{(prospective)} - LEP(AttPt)_{(prospective)}}{LEP(L + AttPt)_{(historical)} - LEP(AttPt)_{(historical)}}$$

Because the formula includes the upper limit (L) as well as the umbrella attachment point (AttPt), this produces an unbiased estimate of the prospective loss costs when applied to aggregate umbrella losses.

7

EXCESS SEVERITY TREND
INDIVIDUAL CLAIM METHOD ISSUES



Severity Trend
Individual Claim Method

Issue #1

How do we approximate the bias in leaving out the portion of the experience that is below the umbrella attachment point?

- With the Individual Claim Method, we generally have the underlying attachment point and policy limit for each umbrella claim.
- Unfortunately, we usually can get only those losses that penetrated into the umbrella layer historically.
- The "missing piece" is the impact of those claims below the umbrella attachment point that would trend into the layer.

9

Severity Trend
Individual Claim Method

Solution

Again, we can rely on size-of-loss distributions from exposure rating to directly calculate the bias.

10

Severity Trend
Individual Claim Method

Issue #2

In some instances, we do not have all individual umbrella losses that have penetrated the umbrella layer – will be missing some losses

- Example: submission includes individual umbrella losses greater than \$1 million only

How to address this problem?

Use an alternative method to properly account for small umbrella losses

11

Severity Trend
Individual Claim Method

Alternative Method

- Individual Claim Method applies ground-up trend to losses
- We want small losses to get hit with leveraged trend
- Force this to happen by grouping small losses for each year and calculating a corresponding attachment point to achieve implied, leveraged trend

How to do this

- 1) Determine difference in aggregate loss amount and sum of individual large losses for each historical period (= "small loss bundle")
- 2) Treat small loss bundles as individual umbrella claims
- 3) Calculate proxy attachment point for the small loss bundle

12

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TREATMENT OF SIGNAL RESERVES
INDIVIDUAL CLAIM METHOD



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Treatment of Signal Reserves

- It is common practice for unsupported umbrella writers to set up precautionary/signal reserves (i.e. \$1, \$50, etc.)
- Caution must be given when trending signal reserves when using the Individual Claim Method


Two possible solutions


- 1) Can treat signal reserve claims as bundle of "small losses" and include in rating.
- 2) Exclude claims from experience rating and add as a load at end of pricing process.

17

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PEER COMPANY BENCHMARK LOSS RATIOS



Peer Company Benchmark Loss Ratios 


- Given complexity of umbrella pricing and common data limitations, it is important to consider peer company or benchmark loss ratios as a complement to traditional experience rating.
- Consideration of the market view when evaluating the pricing of individual umbrella accounts provides additional reasonability check of projected ELR.
- Leverage your experience when rating a new or small umbrella that lacks credibility.

19

Peer Company Benchmark Loss Ratios 

- Given the lack of industry data sources for umbrella experience, umbrella pricing data can be accumulated throughout the year to develop a database of peer company ELRs, rate indices, development patterns, etc.
- When collecting the data it is important to capture the characteristics of each account so that proper comparisons can be made.

20


Peer Company Benchmark Loss Ratios 

- Peer Company ELRs/data should be segmented into more homogenous categories.

What do you think are important characteristics to consider?


- 1) Portfolio characteristics
- 2) Pricing and premium determination characteristics


21



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