



# Calculating a Loss Ratio for Commercial Umbrella

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Excess Severity Trend  
Aggregate Method Issues

Value

9,179.53

11,426.60

9,611.01

re 7,189.65

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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 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.

## 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

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

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

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.

Excess Severity Trend  
Individual Claim Method Issues

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### Issue #1

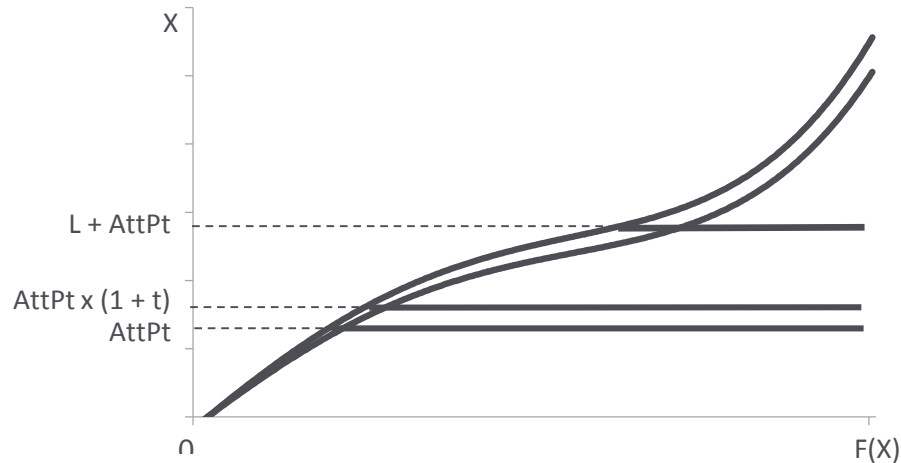
**How do we approximate the bias in leaving out the portion of the experience that is below the umbrella attachment point?**

- 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

# Severity Trend Individual Claim Method

## Solution

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



### 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

# 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

### How to do this

- Determine difference in aggregate loss amount and sum of individual large losses for each historical period (= “small loss bundle”)
- Treat small loss bundles as individual umbrella claims
- Add a factor for “small loss bundle” based on the ratio of untrended losses

## Excess Frequency Trend

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- There is no industry data available regarding frequency trend in umbrella layers
- You can review ISO data and statistics from other data sources (such as National Highway Traffic Safety Administration) and make a judgment on umbrella frequency trend
- Keep in mind that as you move up in umbrella attachment points or layers, the distribution of losses between auto and general liability shifts
- It is critical to understand the portfolio make-up being priced to apply the appropriate indices
- You may need to vary your frequency trend depending on the characteristics of your book of business

## Treatment of Signal Reserves Individual Claim Method

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- It is common practice for 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

- Can treat signal reserve claims as bundle of “small losses” and include in rating
- Exclude claims from experience rating and add as a load at end of pricing process



## Peer Company Benchmark Loss Ratios

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**+5**

**+3**

**+1**

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- 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

- 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

**Peer company ELRs/data should be segmented into more homogenous categories. Examples include:**

## **Portfolio characteristics**

- Business type – supported vs. unsupported
- Layer position – lead umbrella vs. high excess
- Company type – non-admitted/E&S vs. admitted market

## **Pricing and premium determination characteristics**

- Dominant class of business
- Line of business mix
- Average policy size
- Maximum limits sold
- Rating approach (1<sup>st</sup> million factors, ILFs, minimum premiums, etc.)



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