

6.4.3 Analyzing the BF and Benktander Methods

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Both the BF and Benktander methods straddle a middle ground between past expectations and present data. This makes them less volatile than the development method, but also potentially less accurate in rapidly evolving environments if not carefully updated. The influence of different environmental changes is nuanced, depending on the structure of the method and the type of data (paid vs. reported) used.

Changes in Claim Ratios

Both the Bornhuetter-Ferguson and Benktander methods are sensitive to the ECR used to calculate expected claims. When the ECR is based on historical data, but the recent years experience a shift in claim frequency or severity, the expected claims portion may become misaligned with actual experience:

- If claim ratios **increase** (e.g., due to inflation or costlier claims), but the ECR is not updated, the expected claims are understated → both methods will tend to **underestimate** ultimate claims.
- If claim ratios **decrease** (e.g., due to improved underwriting or other favorable trends), but the ECR remains unchanged, expected claims are overstated → both methods will tend to **overestimate** ultimate claims.

These inaccuracies affect both methods, but the impact is more pronounced in the BF method, which relies entirely on the ECR for its estimate of expected claims. The Benktander method, while still influenced by the ECR, becomes increasingly responsive to actual data as development progresses. Its credibility-weighted structure allows it to adjust faster than the BF method as more claims information emerges.

Changes in Case Outstanding Adequacy

Changes in case reserve strength (i.e., how conservatively or liberally case reserves are established) primarily affect the accuracy of the **reported versions** of both the BF and Benktander methods:

- If case reserves become more adequate (i.e., **larger**), reported claims increase → development factors rise → potential **overestimation** of ultimate claims.
- If case reserves become less adequate (i.e., **smaller**), reported claims decrease → development factors fall → potential **underestimation** of ultimate claims.

Since both methods combine development-based estimates with expected claims, they provide some buffering against these distortions. Nonetheless, the reported versions can still be affected—especially if reserve adequacy shifts are sudden or significant.

In contrast, the **paid versions** of these methods are **unaffected**, as they rely solely on paid claims and do not incorporate case reserves.

Changes in Product Mix

Shifts in the types of products or lines of business written can introduce bias into both the development and expected claims components of the BF and Benktander methods. There are two main concerns:

1. **Varying Development Patterns:** For example, if a company begins writing more long-tailed business (e.g., liability) after previously focusing on short-tailed lines (e.g., property), the existing development assumptions may no longer be appropriate. This mismatch can distort the development-based portion of both the BF and Benktander estimates.
2. **Varying Expected Claim Ratios:** If new lines of business have materially higher or lower ECRs, and the expected claims calculation is not properly segmented or updated, the expected claims portion may be inaccurate—leading to biased estimates.

Both methods assume a relatively stable and homogeneous mix of business. When the product mix changes—especially if new segments differ significantly in their development behavior or expected claim ratios—those assumptions can break down.