# Spotting Trends in Loss Emergence

CAS Seminar on Reinsurance

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## Agenda

1. Importance of Monitoring Trends
2. Soft Market Dynamics
3. Common Methods used for Loss Estimation and their Limitations
4. The BF Method
5. Actual Versus Expected , including data interpretation
6. The Importance of Communication

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## Importance of Monitoring Trends

1. Inherent profitability of insurance contract unknown at the time of sale
2. For Casualty lines of business, it takes many years for ultimate cost to emerge
3. Trends impact multiple years, accident years / underwriting years are correlated
4. Industry is highly cyclical with fairly deep underwriting cycles
5. Window for measuring and reacting to change is narrow. For example, reserve movements are closely watched and monitored on a quarterly basis – these trends are imputed to ultimate reserves
6. In summary, a company does not have the luxury of time and needs to know and react to trends as soon as possible...the sooner the better.

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## Soft Market Dynamics

What may happen in a soft market…

1) Significant pressure to grow or maintain business volume;
2) Competitors take away the best risks leaving the most challenging risks behind; hence historical loss ratios may no longer be relevant;
3) New business that a Company would normally reject is written in order to maintain market position;
4) Unintended/unnoticed changes to business profile:
   a) Additional coverage is included at no cost;
   b) Retention limits are changed leading to lower/more exposed limits for the same clients;
   c) More hazardous/longer tail exposures are written (for example, IT1 discussed a treaty where more Products versus PremOps was written).

   As a result of such changes historical reporting patterns may no longer be relevant or may be misleading;
5) Rate decreases take place rapidly and a point is time measurement is too optimistic;
6) Claims that may have been denied before may be accommodated;
7) Client access is not as open as before since bargaining power is reduced;
8) Client may be short staffed due to expense reductions – less due diligence on the original business;
9) Actuaries may be under pressure to use optimistic assumptions.

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## Common Actuarial Techniques and their Limitations

1. Paid Loss Development Method

   Based on real data; however, estimates are volatile since loss development factors are high, particularly for reinsurance; volatility makes it difficult to use for reading trends

2. Incurred Loss Development Method

   Includes paid loss information as well as case reserves; more stable if Additional Case Reserves are included; can still be volatile for reinsurance companies;

3. Frequency/Severity Method

   Hard to get good claims data for pro-rata treaties; reporting of claim count for excess coverage can be subject to delay

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## The BF Method

1. Most commonly used method within the reinsurance industry

Advantage – takes into account reported information but is not overly influenced by it

Disadvantage – Initial assumptions may be incorrect and it may take time to realize/react to this

2. Two key parameters – Initial Expected Loss Ratio and Reporting Patterns

Initial Expected Loss Ratios - usual source is the pricing department, where treaties/contracts are usually priced on an individual basis; could be industry based or could be based on pricing studies with additional judgment from the reserving actuary

Reporting Patterns – could be based on internal data or industry data

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## Actual Versus Expected

Important to define expected:

1) Expected Reported (t) = Selected Ultimate Loss (t-1) * (Expected cumulative reported % (t) – Expected cumulative reported % at (t-1))
2) Expected Reported (t) = IBNR * {(E(t)-E(t-1))/E(t)}

Analysis is not straight forward and we need to parse through the results before reaching any conclusions.

If actual is greater than expected, this could be due to:

a) IELR is too low –this could be due to

(i) Optimistic rate assumptions, including inaccurate measurement of cedant rate changes

(ii) Optimistic loss trend assumptions

b) Underlying loss exposure has changed and actual exposure is more hazardous than expected and starting point expected loss is too low;

c) Reporting pattern used is inappropriate and expected loss emergence is too low along the entire reporting curve.

The reverse could be true if Actual is lower than Expected.

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## Data Interpretation - Signal Versus Noise

1. Are we using the right time period for our analysis?

For long tail casualty lines, it is important to observe and measure trends over short as well as a longer period of time. Short term measurements could be "noise" and long term measurements could be "signal".

2. Do we fully understand actual reported activity?

Is the actual reported activity overly influenced by large loss activity; conversely has there been a slow down in claims reporting?

3. Is there a systematic and observable trend over a period of accident years?

This is a strong signal of changes in the market dynamics

4. Is the observed trend consistent over a period of time?

This is usually a signal that indicates that the underestimation is worse than perceived.

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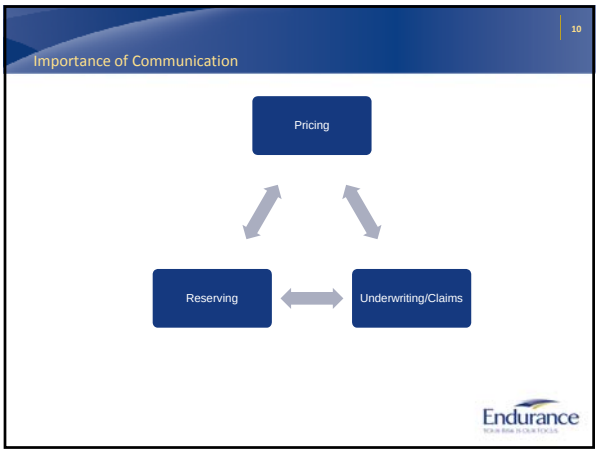
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Importance of Communication
Pricing
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