Spotting Trends in Loss Emergence

Casualty Loss Reserve Seminar

Denver, Colorado

September 2012

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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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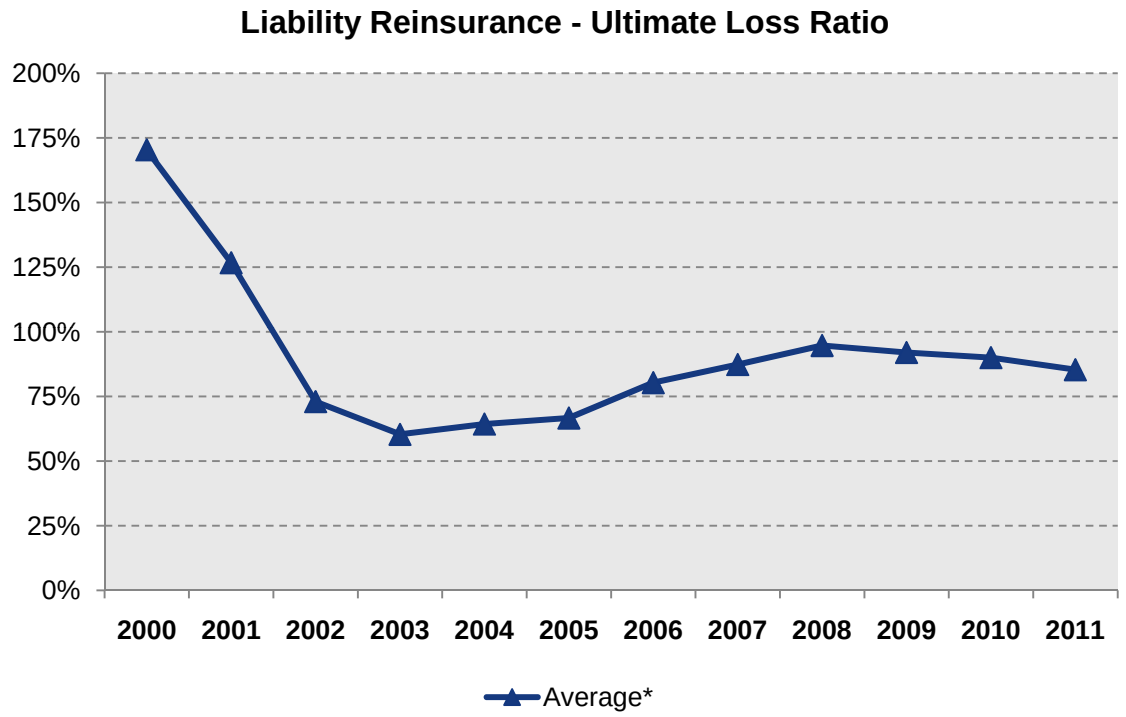
Importance of Monitoring Trends

1. Inherent profitability of insurance contract unknown at the time of sale
2. Industry is highly cyclical with deep underwriting cycles;
   - For example, based on recently published global loss triangles, liability loss ratios for the large European reinsurance companies (Swiss Re, Munich Re, Hannover) decreased from 170% to 60% from 2000 to 2003. Similarly the loss ratio increased from 60% to 90% from 2003 to 2008.
3. For Casualty lines of business, it takes many years for ultimate cost to emerge.
   - Again, based the same global loss triangles, all three major European reinsurers hold approximately 10% of EP in IBNR for the year 2000.
4. Trends impact multiple years, accident years / underwriting years are correlated.
   - Lower loss ratio environment remained for 3-4 years (from 2002-2005).
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.
   - Recent reserve strengthening announcement by a p/c company (reserves were increased by approximately 4% of equity) resulted in a stock drop of almost 17% over a two day period.
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.

Liability Reinsurance Ultimate Loss Ratio



Note: Average based on liability reinsurance (proportional and non-proportional) data for Swiss Re, Munich Re and Hannover Re for UY 2000 – 2011.

Source: Company reported data and IBNR Weekly #31 dated August 12, 2012, p.12

- Loss Ratio decreased from 170% to 60% from 2000 to 2003.
- Loss ratio increased from 60% to 90% from 2003 to 2008.

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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, a treaty may have more Products versus Prem/Ops in its mix).

    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 in 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

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

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?

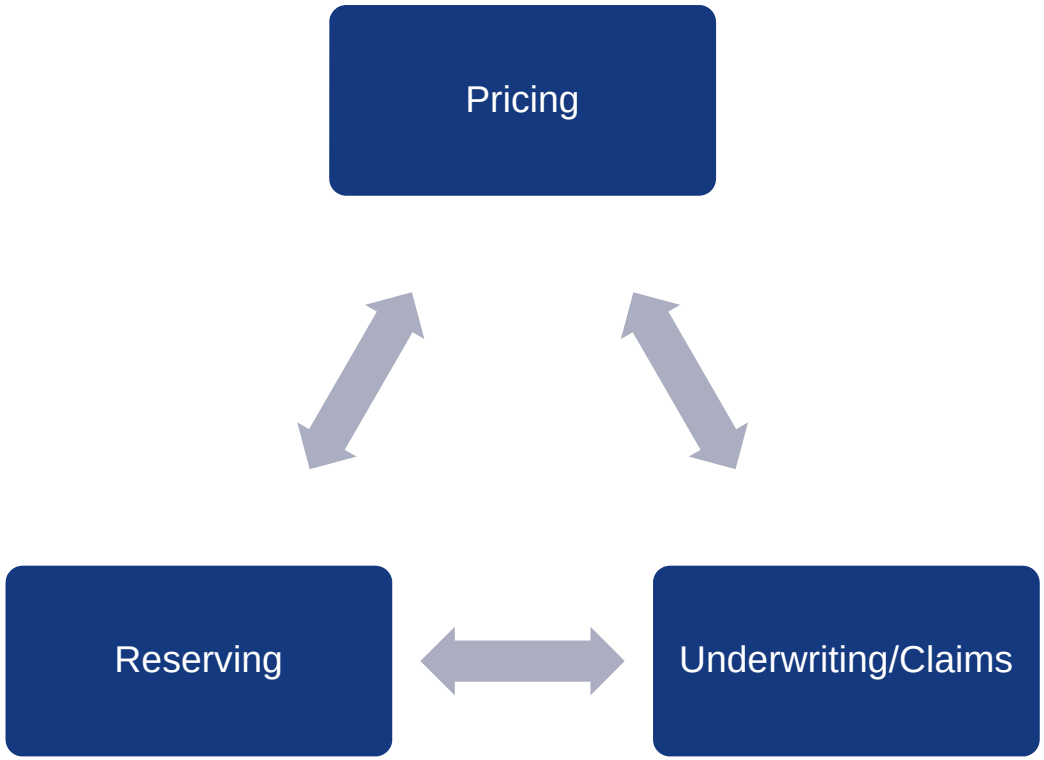
3. Is there a systematic and observable trend over a period of accident years?

   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. Such trends in reserving can be a catalyst for changes in the market cycle i.e. the signal for the need to increase prices and tighten terms and conditions comes from reserving.

Importance of Communication



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