

Class Report

RESERVING APPROACH

DAY 2

 RESERVING

Long-tail revision

Estimating and managing long-tail reserves presents actuaries in all markets with significant challenges. To characterise some of the inherent difficulties, **Thomas Schneider** and **Jean-Pierre Kervella** present sample motor excess of loss data and consider the loss development trends, drivers and collective 'takeaways' for insurers and reinsurers

The long-tail nature of French motor excess of loss reported claims is apparent from (Figure 1, below), as is the fact that the development on cedant's reported losses for this segment was worse for the more recent calendar years compared to the longer-term average; i.e. there was an increasing trend of upward revisions in the reserves of the ceding companies.

This latter point indirectly implies (and has been substantiated by) unexpectedly high claims inflation and/or that

other destabilising soft factors were at play.

Two questions arise from the Figure 1 data:

- What were the drivers of the deterioration in the loss development observable over the last couple of observation years?
- Is the noticeable aggravation in the development for the more recent years a trend that will continue in the future, or is it a temporary phenomenon and will the future development return to the all-year-average level?

The answers to these questions are vital in the estimation of the reserve levels for French motor business.

Three main drivers have been identified as contributing to the observed deterioration of the loss development for French motor excess of loss business.

These are unexpectedly high claims inflation due to hyperinflation for specific costs, increasing life expectancy, and the destabilising influence of discount rates. Over the page we explore these in greater detail.


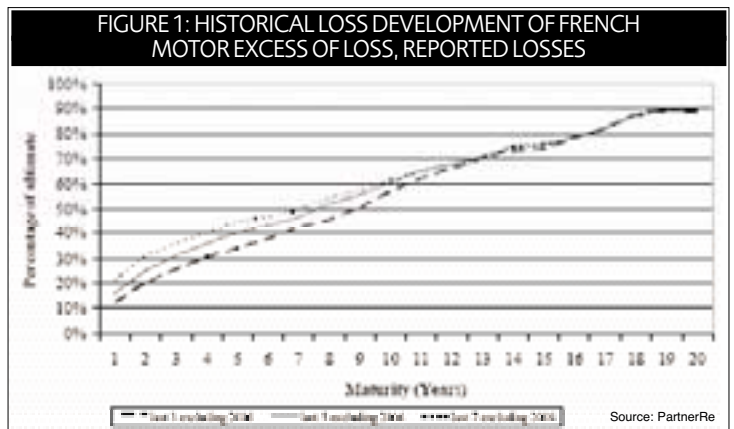
 ANALYSIS

Figure 1: Historical loss development on losses reported by ceding companies to PartnerRe for French motor excess of loss business, as of the year-end 2006.

The percentage numbers on the vertical axis represent the fraction of the ultimate claims value reported at a given point of time. The horizontal axis shows the

age of development in years. The loss development is calculated as a series of link ratios between the cedant's reported losses, using a weighted average over the last three, five and seven accounting years. All calculations are performed excluding the most recent year diagonal, in this case 2006, as this diagonal remains incomplete.



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IN THIS EDITION

RESERVING 1
French motor excess of loss data.

BODILY INJURY 2
An analysis of claims trends.

STRATEGY 3
Understanding the drivers behind loss development.



The forthcoming PartnerRe technical publication, *Points de Vue*, will contain this and other articles on the topic of bodily injury losses, with a predominately European focus. It is out in early 2008.



LOSS DEVELOPMENT

Bodily injury claims trends

Motor excess of loss reserves are set primarily for severely injured accident victims in order to indemnify the associated care costs, medical costs and income replacement. The reserves are set up on notification of a claim and are then, to a large extent, paid out over the entire lifetime of the victim.

The inflationary trends in bodily injury claim components in France were excessive over the last couple of observation years and claim costs have sky-rocketed, even for accidents having occurred in the far past. The most notable inflationary increases have been recorded in the following positions (Figure 2): extreme increase in care cost inflation; substantial increase in medical cost inflation; and various forms of social or judicial inflation: court rulings and law changes mean that granted awards to victims are now higher compared to past cases. Reinsurers have been significantly impacted by these

developments. A 2006 report of the Ministry of Economy/Banque de France mentions that losses from French motor business ceded to the reinsurance market increased by 44%, from €1.6bn in 2004 to €2.3bn in 2005. This change reflects how the cost deviation led to a higher claims frequency and severity for reinsurers.

Reinsurers became involved in claims that were not expected to trigger non-proportional layers, claims pertaining to past underwriting years that became more costly than expected at the time of underwriting.

Reinsurance wordings were not designed for such developments and thus failed to produce a corresponding balanced distribution of the bodily injury claim inflation between cedant and reinsurer.

For example, the indices retained for updating the priorities and limits of impacted treaties did not neutralise the true level of bodily

injury claims inflation.

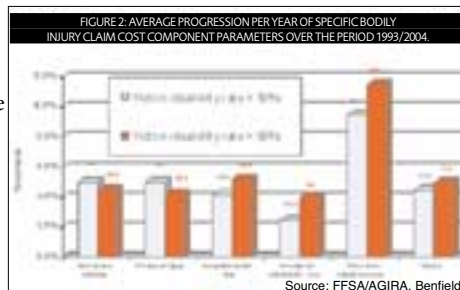
The most commonly utilised index, the GIM (Index of Salaries in the Metallurgic Industry), has increased by a yearly average of 3% over the last 10 years. The French Federation of Insurance

Companies recognises that bodily injury claim costs as a whole have increased by an average of 5% to 6% per year over the same period, the trend being largely worse for claims concerning young victims with a high permanent disability rate.

Most of the claim components under motor excess of loss contracts are linked to the life expectancy of the victim. Increasing life expectancy therefore has a direct impact on re/insurance cost. In the French market, insurance companies have replaced the mortality table TD 60/64 with the more recent

mortality table TD 88/90. The latter confirms longer life expectancies and as such implies higher insurance and reinsurance cost. Even so, table TD 88/90 is based on a study from 1988 to 1990, and the life expectancies given there are now outdated.

French life insurance companies and mutuals are currently implementing newer mortality tables, TGF05 and TGH05. If applied in the non-life insurance sector, this would further add to claims inflation and lead to a review of reserves, while improving the reserving accuracy.



ANALYSIS

The influence of interest rates

A change in the discount rate applied by ceding companies to a book of business impacts every single

claim reserve (though the effects of such movements are more accentuated for larger losses). This is a significant driver of the

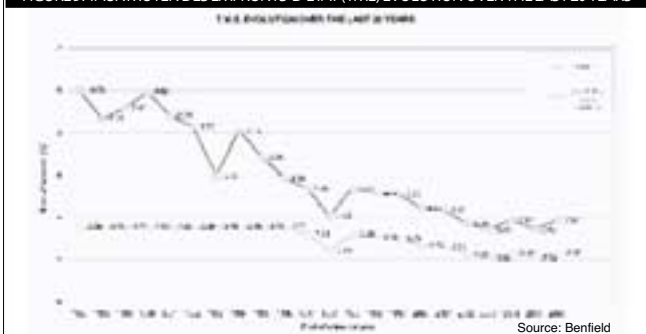
observed loss development deterioration.

The discount rate applied by French ceding companies is 60% of the Taux Moyen des Emprunts d'Etat (TME) with a maximum of 3.5%, in line with the rule stipulated by the Insurance Code.

Following a long period during which 60% of the TME had remained above the maximum authorised 3.5% discount rate (steadily applied by insurers), further interest rate deductions created a situation where as

from 1997, 60% of the TME fell below the 3.5% regulatory maximum rate. In consequence, insurers were forced to review their gross reserves every year with a further reduced discount rate, a policy which also seriously impacted the technical accounts of reinsurers, particularly when reserving on an undiscounted basis. The TME reached its lowest point (3.43%) in recent history during the second half of 2005 (see Figure 3, left).

FIGURE 3: TAUX MOYEN DES EMPRUNTS D'ETAT (TME) EVOLUTION OVER THE LAST 20 YEARS



STRATEGY

Worse to come?

So will trends continue to deteriorate or can it be anticipated that the loss development will return to long-term average levels?

Certain external events have been identified as 'one-off' factors that have incidentally disturbed the actuarial models. Examples include the move from the French franc to the euro in 2001 (effect of the rounding of the parameters for calculating the reserve for future care costs and permanent disability compensation), and the move to a 35 hour working week in 2002 (in consequence, more care assistants are needed for heavily impaired victims). Excluding other such potential events, the expectation for future development is as follows:

- Inflationary trends for care cost, medical cost and related positions will continue to outweigh general inflation, but have already begun to reduce. Both the insurance industry

IN BRIEF

With recognition of the loss inflation and incremental reserve adjustments to take the latest cost and mortality data into consideration, the future loss development on reported losses in France is likely to stabilise, slowly returning to the all-year-average level.

and public bodies are seeking solutions and will hopefully find ways to further limit and contain the current drivers of French bodily injury claim cost inflation. Question marks and

concerns are being raised by the recent decision to implement the new 'Dintilhac nomenclature', which details the parameters and components of compensation for the physiological and pecuniary loss of an injured victim: this will probably imply elements of inflation, which so far remain to be evaluated.

- Life expectancy will further increase and will remain a threat to the non-life re/insurance industry in terms of loss inflation. The use of more up to date mortality tables will contribute to further loss inflation and reserve instability, but is essential to increase the adequacy of reserves.
- Discount rates will continue to change and affect the reserve lev-

COMING UP TOMORROW

DAY 3: COVER FOCUS

- The shifting balance between proportional and non-proportional cover
- Strengths of proportional cover
- Why it could prove to be the better option.

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els of ceding companies. The current expectation is that interest rates will rise in the short to medium term, translating into further decreases in discounted reserves. This will partly offset the cost inflation outlined above.

Loss development for this business segment has indeed shown notable improvement during 2007. Looking forward, the overall expectation is that although loss inflation will continue its upward trend, the impact on reserve levels in the medium term will be reduced by further discount rate reductions.

ANALYSIS

A combined approach

As the adequacy of reserves is essential to all re/insurance companies, it is paramount that the driving forces behind loss development are understood and that their implications are integrated as quickly as possible not only into pricing and contract formation (including improved indexation terms in excess of loss reinsurance contracts), but also within the reserving model.

Probably the biggest single challenge for reinsurance reserving actuaries in all markets is that although they may be aware of the loss and reserving issues, i.e. that inflationary trends have been high, life expectation is increasing and discount rates are changing, it is in fact often unclear as to the extent and point in time when a ceding company has or will build these changes into reserving models.

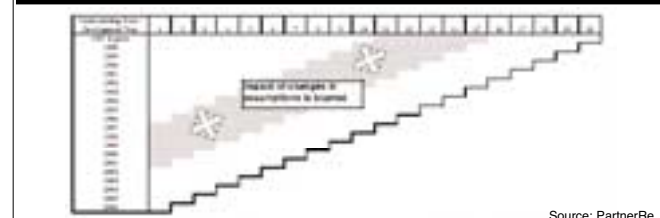
Furthermore, even if the extent

and time is known, a reinsurer usually aggregates data across cedants in order to construct homogeneous data segments. As a result, the impact of changes in reserving assumptions in a reinsurance loss reserving triangle is spread over a band of diagonals and individual effects are blurred (see Figure 4, left).

Frequent communication and information transfer between reinsurance claims analysts, underwriters and ceding companies can substantially enhance the understanding of trend deteriorations – materially improving the quality and stability of the reserve analysis.

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FIGURE 4: REINSURERS AGGREGATE DATA ACROSS CEDANTS TO CONSTRUCT HOMOGENEOUS DATA SEGMENTS FOR RESERVING, BLURRING THE EFFECT OF INDIVIDUAL CHANGES IN A CEDANT'S RESERVE ASSUMPTIONS



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