GENERAL LIABILITY RATEMAKING: AN UPDATE

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DISCUSSION BY WARREN JOHNSON

According to the author, the purpose of this paper is "to present a summary of the adjustments that have been made in the basic limits ratemaking methodology [in the fourteen years since Jeffrey T. Lange wrote "General Liability Insurance Ratemaking"] and the reasons for their introduction." The author has accomplished this stated purpose. All significant changes are discussed; some further changes that have occurred since the paper was written will be mentioned later in this review. Generally, each of these changes is well-documented with respect to both the new methodology that is used and the reasons for adopting the new methodology.

Undoubtedly this paper will be studied by students endeavoring to learn GL ratemaking. The author's decision to update rather than rewrite Lange's paper, while justifiable on the basis that much of what Lange wrote remains accurate and valid today, leaves the student in the unenviable position of having to learn this subject in a less than straightforward manner. First the student must master Lange's paper, which presupposes a knowledge of both Stern's "Ratemaking Procedures for Automobile Liability Insurance" (*PCAS* LII), and Benbrook's "The Advantages of Calendar-Accident Year Experience and the Need for Appropriate Trend and Projection Factors in the Determination of Automobile Liability Rates" (*PCAS* XLV). Then the student must read this update to sort out which of the 1966 procedures discussed by Lange remain valid, and which have been changed.

The author begins by stating that the industry has experienced a significant period of social and economic inflation. Presumably, social inflation refers to an increased propensity to sue by the public, and an increased willingness to award damages by the courts. We all have heard and read that these phenomena are occurring, and yet for GL other than professional liability, no significant upward trend in claim frequency is seen in the ratemaking data. On the other hand, Page 14 Annual Statement losses for GL have increased at a rate far greater than the general inflation rate.

A few comments with regard to McManus's section on loss development might be appropriate. The discussion of Medical Malpractice is up-to-date. For GL other than professional liability, Insurance Services Office (ISO) now has loss development data through 123 months of maturity for products liability and through 75 months of maturity for OL&T and M&C. (Bodily injury and property damage losses are available at each evaluation.) Ultimately, ISO expects to compile loss development data for these sublines through 135 months of maturity. The author refers to a procedure in which development beyond the last observed development interval is assumed to be equal to development in the last interval. It is not clear from the paper that this procedure has been used for BI as well as PD, and is still being used today for the sublines other than professional liability. In the loss development section, the author also refers to a theoretical problem in using data limited to a fixed dollar amount to calculate loss development factors. It would have been helpful if the author could have discussed how the problem is handled, or why it was dismissed.

In the section entitled "Definition of Basic Limits," an adjustment, due to the fact that a small number of insureds purchased policies with limits of less than $25,000, is discussed. This is a fairly minor technical point that could have been omitted. However, since the item is mentioned, I must point out that the adjustment is not properly described. The ratio of (a) the $25,000 increased limits factor (on a $5,000/$10,000 basis) to (b) the average increased limits factor for those insureds purchasing limits less than $25,000 was applied to the reported incurred losses above the $5,000 limit but below the $25,000 limit.

In the products liability section, it is mentioned that rates for the newly erected classifications were adjusted by overall trend factors during the period of time when there were no data available for these new classes. Although this is true, it was not the only procedure used. In some cases, a revised rate was selected by analogy to the indicated rates for marginally similar classifications.

The paragraph regarding classification ratemaking for products liability provides a discussion that is perhaps a bit too brief for a rather complicated and important issue. This omission of greater detail may be forgiven (although somewhat fortuitously) since this is one area in which the ratemaking methodology has been revised since Mr. McManus wrote his paper.

In the section entitled "Future Challenges," it is stated that "the resultant elimination of sublines will reduce the credibility problems that exist today." The reader might easily get the impression that combining things so as to increase the volume (number of claims) automatically increases credibility. This is not the case if dissimilar entities are combined; such combinations could

reduce credibility by increasing the variance in the data (due to reduced homogeneity).

It is not my intent to document in complete technical detail those areas in which an update of the author's paper is in order, but rather to simply mention such areas and briefly describe what ISO has done.

The ISO General Liability Actuarial Subcommittee (GLAS) has adopted a Bayes credibility procedure for use in products liability classification ratemaking. Using this methodology, the credibility assigned to the experience of a class is a function not only of the experience for the individual class, but also of the experience for the class group within which the class falls. The greater the variance in loss ratios by year within a class (given a constant variance among classes), the lower the credibility assigned to that class's experience. The greater the variance in loss ratio between classifications within a class group (given a constant variance by year within class), the greater the credibility assigned to the individual class experience, since the class group loss ratio becomes a poorer predictor of the individual class's loss ratio. For a detailed discussion of this subject, refer to "Report of the Credibility Subcommittee: Development and Testing of Empirical Bayes Credibility Procedures for Classification Ratemaking," published by ISO in September, 1980.

An interesting and rather significant modification in the calculation of the overall rate change for products liability has been adopted by the GLAS. It has been observed that, to a certain extent, the pure premium using real exposures, i.e., exposures adjusted for inflation, varies inversely with the business cycle. This is because products liability coverage pays for occurrences during the policy period (regardless of date of sale); much of the products liability hazard results from goods sold in previous years. Thus, in an expansionary period exposures increase and losses increase, but not as much as exposures, leading to a reduction in pure premium. The opposite occurs during a period of recession. Although it is difficult to draw definitive conclusions from a limited number of data points, the attached exhibit and graphs tend to confirm the above hypothesis. It is often suggested that the number of claims tends to increase during poor economic times. Although this may be true to a limited extent for products liability, it is apparent that the largest part of the variation in claim frequency is due to movement in exposures, rather than claims. This problem has been addressed in the following manner. Exposure trend, which is based upon econometric forecasts, is calculated to reflect inflation only. In essence, a price deflator, properly weighted to be applicable to products liability, is used.

Claim frequency (number of claims related to dollars of premium at present rates adjusted to a common price level) is modeled against "Gross Investment in All Structures in 1972 Dollars" (a proxy for the business cycle), separately for BI and PD. Future claim frequencies are then calculated by using forecast values of "Gross Investment in All Structures in 1972 Dollars." Claim frequency trend factors are calculated not as annual percentage changes, but rather as specific factors to span the gap from each policy year in the experience period to the policy period for which the revised rates will apply. An analagous procedure will be used for M&C.

The final change in ratemaking methodology that I would like to mention pertains to claims made coverage. In 1975, a major shift began taking place from an occurrence form to a claims made form for professional liability. Approximately twenty percent of all Physicians, Surgeons and Dentists coverage is now written on a claims made form. ISO priced this coverage by establishing claims made multipliers that apply to rates for the occurrence form. These multipliers were based on a summarization of accident year losses by report year. These data were primarily from a single company that is a large writer of professional liability.

Once claims made data entered the ISO data base, the question arose as to how the data should be used, since they are too large a portion of the whole to be ignored. Two basic issues needed resolution. How should the claims made data be used for the basic rate level calculation? How should the claims made data be used in the trend calculation? Excluding the claims made data would distort the trend calculation because the entire trend curve would not be based on a consistent set of insureds. On the other hand, merely combining claims made and occurrence data in the frequency and severity trend calculations would produce a distortion because only the latest year(s) of the trend curves would contain claims made data. (The first year(s) of claims made data exhibits lower than average claim frequency and claim severity.)

Two solutions to the first problem were considered. The first was to restate the claims made data as if they had been written on an occurrence basis. Although difficult, this approach theoretically is possible. However, a necessary condition for the validity of this procedure is that the same insureds remain in the ISO data base year after year. The impossibility of such a consistent data base led to the rejection of this solution. The second alternative, which the Professional Liability Actuarial Subcommittee adopted, was to combine the claims made data directly with the occurrence data. Claims made losses, properly developed, are added to occurrence losses, properly developed. (Claims

made losses develop only due to changes in reserves on known claims, since by definition there is no IBNR. A unity loss development factor for claims made losses was selected judgmentally, and will be used until an historical record is available for calculating actual claims made loss development factors.) Premium at present rates for claims made data (exposure times rate times claims made multiplier) is added to premium at present rates for occurrence data (exposure times rate).

The second problem was resolved by calculating trends from basic limit loss ratios at present rates (for occurrence and claims made data combined). This enabled the use of a consistent data base for all years in the trend calculation, and removed the distortion that claims made data would produce if severity and frequency trend were examined separately.

Both Mr. Lange and Mr. McManus have stated that GL ratemaking procedures will continue to change. Although these ongoing changes are in the nature of fine-tuning, rather than a complete overhaul, they are nonetheless both significant and frequent. Mr. McManus should be thanked for this effort to keep us up-to-date on the ratemaking procedures for this important line of insurance.

PRODUCTS LIABILITY CLAIM FREQUENCY CHANGES
BODILY INJURY AND PROPERTY DAMAGE—COMBINED
MANUALLY RATED CLASSES
COUNTRYWIDE

Policy Year	Premium at Present Rates* (millions)	Index to 1970	Number of Claims ϕ	Index to 1970	Claim Frequency#	Index to 1970
1970	$115.7	1.00	13,366	1.00	115.5	1.00
1971	145.5	1.26	15,491	1.16	106.5	.92
1972	141.8	1.23	16,212	1.21	114.3	.99
1973	136.0	1.18	15,281	1.14	112.4	.97
1974	112.0	.97	15,798	1.18	141.1	1.22
1975	135.8	1.17	17,276	1.29	127.2	1.10
1976	165.8	1.43	16,573	1.24	100.0	.87
1977	176.8	1.53	18,229	1.36	103.1	.89

* Trended to the price level anticipated 4/1/82.
ϕ Developed to an ultimate basis.
Number of Claims per $1,000,000 of premium at present rates.
Source: Insurance Services Office

PRODUCTS LIABILITY