ALLOCATED LOSS EXPENSE RESERVES

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DISCUSSION BY EARL F. PETZ

Mr. Resony has presented an interesting method for determining the allocated loss expense reserve and his work displays a good deal of ingenuity. Furthermore, I suspect that, at least for him, the method[1] works. There are some parts of his formula which, I think, fall short of the ideal and which might be considered for modification or, as suggested later in this review, for which an alternative approach might have merit. The less than ideal elements[2] would include the following:

1. The F ratio method requires the use of "created year". This is information which is not generally required and carrying it forward, in addition to accounting year, accident year and policy year, just adds one more thing which can go wrong. In the case of our company, we do not carry created year through our statistical routines and, therefore, were unable to make a direct test of Mr. Resony's methods.

   Could accident year be substituted? As a measure of age of claim, accident year might even be superior. The theory is that the ratio of allocated loss expense[3] to loss increases with age of claim. In this respect, isn't a claim from "x" accident year "created" in year "x + 2" more likely to resemble other claims from accident year "x" than to resemble other more recent claims?

2. The F ratio is an abstract quantity. The ratio of paid ALE during a calendar year to the change in loss reserve outstanding during the same calendar year is a ratio which has no meaning in and of itself. Presumably, these ratios have worked empirically but their use makes it difficult to explain the method to Insurance Department Examiners or to management.

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[1] Subsequently referred to as the "F ratio" method.

[2] Most of these items were mentioned by the author in his paper and are repeated in this review primarily as a basis for suggesting possible variation to the F ratio method.

[3] Subsequently abbreviated "ALE".

Would it be possible, instead, to use the ratio of ALE paid to losses paid in a calendar year? These would be split by created year or accident year, of course. For those years in which there has been no change in the estimated ultimate losses, the F ratio and the ratio of paid ALE to paid loss would be the same. For those years where there has been a change in the estimate of the ultimate total incurred losses, the ratio would be different, but it is not clear that the F ratio would be superior to the paid ratio. During any one calendar year, there is no necessary relationship between paid ALE and either paid losses or losses "disposed of".

3. The "disposed of" ratios are artificial and may be unstable. The amount of loss disposed of is equal to the change in loss outstanding or paid losses, plus or minus the change in the estimated ultimate total incurred loss which has taken place during the year. While the ratios given in the paper show reasonable stability, this would not necessarily be the case, especially for a line like general liability. For this line, our company actually developed some "disposed of" ratios which were greater than 1.000 (for accident years 1969 and 1970 valued successively 12-31-71 and 12-31-72.)

4. The F ratio method is independent of redundancy of loss reserves if and only if the degree of redundancy or inadequacy does not change. While a stable condition of redundancy or inadequacy would be ideal, it is unlikely to be realized under actual conditions. When there is a change in degree of redundancy over a period of time, this method is, probably, no more stable than one which sets the ALE reserve as a percentage of the loss reserve and which, consequently, will be over, or under, as the loss reserve itself is over or under. For example, if there was a loss reserve redundancy in the years which were used to determine the F ratio and none in the year to which it was being applied, the ALE reserve would be low. This is because the amount of loss "disposed of" (the denominator of the F ratio) would be artificially large when disposing of claims which contain a redundancy. Such an F ratio produces a proper answer only when applied to a year with a like amount of redundancy.

5. The method does not recognize special situations. This is perhaps more a failing of any formula reserving system than it is of the F

ratio system in particular, but, in developing experience by risk or by agent or in any other limited category, the formula is unable to recognize exceptional situations where, for example, an unusually large ALE reserve is required on a particular claim or where there is variation in the legal activity from territory to territory. For this kind of use, there appears to be no substitute for case basis reserves.

As a possible alternative to the F ratio method, or perhaps as a supplementary check thereto, the following system is suggested for consideration:

(a) Determine the ratio of paid ALE to paid loss, cumulatively, by accident year at successive valuations.

(b) From this array, select ultimate ratios by accident year.

(c) Apply the selected ultimate ratio to losses incurred for the accident year.

(d) The allocated loss expense reserve is the difference between the ultimate figure calculated in step (c) and the paid ALE to date, by accident year.

The following exhibit shows an array of the type referred to in steps (a), (b) and (c) above. The approach to selecting the ultimate values might well be the subject of considerably more study, but in a surprisingly high proportion of the cases reasonable values will be pretty well self-evident.

RATIO OF ALLOCATED LOSS EXPENSE PAID TO LOSS PAID GENERAL LIABILITY BI

Accident Year	Valued As Of (Months)											Selected Ultimate
	12	24	36	48	60	72	84	96	108	120	132	
1962	.03	.09	.19	.26	.31	.33	.33	.37	.38	.36	.36	.36
1963	.04	.12	.23	.28	.33	.34	.34	.37	.36	.38		.38
1964	.03	.12	.22	.30	.29	.33	.36	.36	.38			.38
1965	.04	.13	.27	.33	.38	.41	.40	.39				.40
1966	.03	.13	.26	.36	.41	.43	.44					.45
1967	.03	.15	.41	.31	.36	.35						.39
1968	.10	.12	.20	.31	.34							.38
1969	.04	.13	.26	.36								.40
1970	.03	.13	.25									.39
1971	.03	.17										.39
1972	.07											.39

This suggested method has the advantage of using ratios of paid ALE to paid loss which, though perhaps no more meaningful in themselves than the F ratios, are more likely to be acceptable to Insurance Department Examiners and management as appearing to be reasonable. The use of accident year, rather than created year, avoids the necessity for carrying additional statistical information since accident year is required for many other purposes anyway. This system has the drawback of being dependent upon the adequacy of the loss reserves. If they are over, or under, the ALE reserve will also be over, or under.

If this system is used as a pure formula reserve, it has the same deficiency as number 5. for the F ratio method and suggests another way of using this approach, which is to use case basis reserves established by the claim department, the adequacy of which is tested by this method, with feedback to the claim department to assist them in establishing the reserves at an adequate level.

The major advantage of the proposed alternate system is that it is simpler. It requires no separate treatment for IBNR, nor adjustment for other than year-end dates, yet it may very well produce ALE reserves which are as accurate as those produced by the F ratio method. To produce an accurate reserve under either method, one needs to know what is happening in the way of both internal and external influences. With that information, a good reserve can be produced by either method and, without that information, neither method will produce a good reserve.