Letter To Mr. Fisher
From Mr. Kreps
Dated 5/1/87

Mr. Russell Fisher

Dear Mr. Fisher,
    I have recently seen a modification by Mr. Feldblum to the seminal paper by Ferguson on indexing retentions. I have been impressed by this sufficiently to wish to share with you an example that I find fairly persuasive.

    Consider a risk with two losses, each indexed to $50,000 at time t=0. Let the direct insurer's retention also be $50,000, and the index grow at, say, 10%. Consider scenarios when the losses occur at various points in time:

1) Both losses are at t = 0. Then the direct and the reinsurer each get one loss, an equal sharing.

2) Both losses are at t = 1 year. Then the losses are $55,000, and without the indexing the reinsurer would pay $60,000 and the direct $50,000. However, with the index they each again take one loss.

3) Both losses are at t = 10 years. Then the losses are $129,687 each, and because of the indexing they are still shared.

4) One loss is at t = 1 year and one loss is at t = 10 years. This time, because of the way the index allocation is done, the direct pays not just for the first loss, but also for 29% of the second loss.

5) Even more dramatically, suppose the first loss occurs at t = 0. Then the reinsurer is in the embarrassing position of having to say, "Well, yes, your retention is $50,000 and you have in fact paid it in uninflated dollars. But, instead of covering amounts over your retention we are going to ask you for more. In fact, the longer we wait, the bigger a piece of the subsequent loss we are going to ask you to pay."

    This is hardly equitable or a sharing of inflationary effect, and it is perhaps not surprising that there has been some resistance to buying into such a relationship. On the other hand, if we try Mr. Feldblum's notion, which is essentially to regard the retention as a cash flow, then in all of the above scenarios each insurer covers one loss, independent of when they happen. Since the claims follow the index and therefore have equal economic value, this is exactly what is meant by "equitably sharing the effect of inflation" or "retaining their relative monetary value".

    The easiest way of stating the procedure is as follows: As claims come in, they are deflated to t = 0, and then subtracted from the retention. When the deflated claim values exceed the retention, then the reinsurer takes over.

    This procedure also removes two nagging problems, especially referenced by Levin in his review, from the excellent Ferguson paper. First, it is no longer necessary to wait until all claims come in to know who will pay what. Second, multiple payments on a claim are simply indexed as they come in, and present no difficulties. In fact, this procedure makes indexed retentions as easy to work with and understand as regular retentions.

    I feel that this idea has much merit, and is worthy of your consideration.

                    Sincerely yours,

                    Rodney Kreps

                    Rodney Kreps, A.C.A.S, Ph.D.

cc: Feldblum, Ferguson, Lehman, Philbrick