A Comment on Nierhaus' Paper: Some Thoughts on Subjective Net and Gross Insurability

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The growth of urban agglomerations, social problems, accumulation hazards and chain reactions triggered off by a loss occurrence, technological progress and concentration of values as well as increased lack of transparency and the vulnerability of numerous risks are pushing professional risk carriers with increasing frequency to the limits of their ability or readiness to provide cover. We refer to risks which an insurance company is no longer able or willing to accept as subjectively uninsurable risks.

The subjective limits of insurability of risks of an insurance company can be analysed, leading to basic findings [1].

All risks which a certain insurance company would reject if cover is requested form its subjective domain of uninsurability; those risks which it would accept form its subjective domain of insurability.

We can distinguish between a subjective net and a subjective gross domain of insurability. The *subjective net domain of insurability* consists of those risks which an insurance company would accept without any further cessions to reinsurers, co-insurers or pools; the much larger *subjective gross domain of insurability* consists of all risks which it would accept through being able to pass on risks to further risk carriers.

Since the development of social and technological progress push more and more risks to the limits of subjective insurability of any insurance company [2], it must attempt to keep pace with this development and to expand its domain of insurability accordingly [3]. Otherwise it will increasingly be in a position of having to refuse offers and lose them to competition.

How can it secure an expansion of its limits of insurability in conformity with the market's needs? Let us examine several possibilities, some recommendable and some not:

1. The insurance company can relax its business principles and guidelines and thereby expand its domain of insurability. It can for example be prepared to assume covers at worse conditions from year to year. It can increasingly waive an expected underwriting profit or at a later stage be prepared to accept a growing underwriting loss. Such a consistent deviation from necessary business principles must lead to ruin and is certainly not recommendable.

It does, however, frequently occur that a company does give way for a certain time to conditions which would not normally be accepted as a result of exogenous factors, such as unusually strong competition. A less strict business policy can then be pursued in order to maintain a market position, for reasons of prestige, etc. The consequence of a less strict business policy is an "unhealthy" increase of the subjective net domain of insurability.

2. For various reasons of business policy like the rating of the company or its reputation but also for internal reasons an insurance company can expand its net domain of insurability and its profits set out by reducing reserves of all kinds under certain pretexts. In the long run such a policy is irresponsible if the reduction of reserves is not in effect justified.
3. By obtaining loss material and other documents relevant to the risk (e.g. seismological and geological data to assess an earthquake risk), by analysing claims statistics and using risk theory and risk management, risks which were formerly considered to be subjectively uninsurable can be recognized as being subjectively insurable. The more risks are made insurable by additional information and improved evaluation of knowledge [4], the more the subjective domain of insurability can be expanded. In contrast to the measures mentioned under points 1 and 2, the measures described here are to be welcomed. However, they can also limit the subjective domain of insurability in that they reveal as subjectively uninsurable risks which were felt to be subjectively insurable. Such a shrinkage as a result of improved risk knowledge can be a blessing for an insurance company.
4. As a last, recommendable and extremely effective possibility of expanding both the subjective net and the subjective gross domain of insurability we mention here reinsurance.

Image, competitiveness and fulfillment of customer needs are closely linked with the *subjective gross domain of insurability* and this in turn with the *reinsurance policy* of the insurance company. The more cover capacity it has available thanks to reinsurance, the more risks it can accept in accordance with its business policy and it needs to reject cover for increasingly fewer risks. This promotes its esteem and reputation in the market and enables it to follow the challenge of an increasingly growing cover demand.

Better portfolio balance within the retention area, reduction of the probability of ruin and loss and increased expectation of net profit are closely linked with the *subjective net domain of insurability* and this depends considerably on an *appropriate reinsurance programme*. One direction for the insurance company to take must be to *release* as much *cover capacity* as possible at an appropriate reinsurance premium. The capacity which is released can be used to expand the subjective net domain of insurability and to achieve an optimal utility by covering further risks as long as the previous probability of ruin has not been reached [5].

Let n *annual risks* be a risk for which an average of n claims is expected annually; then the capacity released by the reinsurance programme can be used all the better the more new annual risks can be covered independent of the former portfolio and each other. Let us assume that with the old reinsurance programme the capacity of the insurance company was fully exhausted, so that it could not have accepted any new risks. We see then how an improved reinsurance policy releasing additional capacity expands the subjective net and gross domains of insurability and achieves an improved portfolio spread in the retention with the increase of independent annual risks.

For the insurance company quota-share reinsurance brings about a cost gain if the reinsurance commission (as a percentage of the reinsurance premium) is greater than the expenses (as a percentage of the overall premium). If the insurance company is prepared to partly waive this profit, then it can grant covers more cheaply, i.e. more readily cover risks and expand its subjective gross domain of insurability. The company thereby becomes more competitive.

The pronounced improvement in balance of the net portfolio which is achieved with forms of non-proportional reinsurance enables the insurance company to accept covers at reduced safety loadings, i.e. with lower premiums and at the same time to reduce its ruin probability if it wishes to do so. As with quota-share reinsurance, it can expand its subjective gross domain of insurability and become more competitive.

Since reinsurance is a very recommendable and for many insurance companies the most effective way and solid guarantee to secure an expansion of its subjective gross and net limits of insurability in conformity with the market's need, they should take care not to obstruct that possibility of expansion.

It is in the own interest of a ceding company to maintain continuous relationships with reliable reinsurers at fair reinsurance premiums and not to make an antiselection of risks to the disadvantage of its reinsurers.

Moreover it would be unreasonable to waste released capacity, but also additional reinsurance capacity and good will, on covering a few major risks which expose the insurance company and/or reinsurers to large fluctuations. It would be unfair and in the long run very expensive if not impossible to transfer predominantly few major risks to the reinsurer as demonstrated by F. Nierhaus in many examples in this same issue of the Geneva Papers [5].

Insurance companies should try not to control the catastrophe exposures by reinsurance but by their own gross underwriting [5].

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