

## High volatility in aviation insurance: Are premium rates due for a nosedive?

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### **sigma No. 1/1996**

*sigma*, Swiss Re's insurance research publication, turns to the subject of aviation insurance in its No.1/1996 issue. The study provides a comprehensive, detailed survey of this market, analysing the causes for the sharp fluctuations in the premium rate observed there. Premium rates are then projected to the year 2000 using an econometric model.

The aviation insurance market, with its \$5 billion of premiums - 0.6% of all non-life premium volume - is relatively small. It is characterised by a high degree of internationalisation, as well as unusually intense competition. Particularly conspicuous is the large fluctuation of premium rates: in the last price cycle, the overall hull premium rate for airlines sank in 1990 to one-eighth of its 1986 high, and has since climbed by a factor of 3.3. Liability rates, which retreated to less than a fourth of their previous value between 1987 and 1990, then trebled in following years, are somewhat less volatile. Yet even this somewhat less drastic swing is so strong that one could only speak of "correct" (risk-oriented) price setting in the transitional periods between the hard and soft market phases. Price fluctuations run virtually parallel throughout the world.

Loss experience (loss per cover amount) demonstrably plays an important role in determining prices, exerting its effect principally on long-term trends (as can be seen by the similarity of the two curves in the graph). Other factors are instrumental in provoking the multi-year price cycles. One of these is the fact that the aviation insurance market is a residual market. Low barriers to market entry allow insurers to direct any surplus insuring capacity into this market in relatively simple fashion, and withdraw it again when capacity becomes tight. As demand for the insurance is quite rigid, and the market is unregulated to a great extent, large fluctuations result. In addition, correct, risk-oriented price setting is generally difficult and time-consuming due to the nature of the losses: infrequent, unpredictable, and large. The residual character of the aviation insurance market can be seen in the empirically supported model featured in *sigma*, where the capitalisation (surplus) of the overall US property and casualty market exerts a strong influence on aviation insurance prices.

In the study, two econometric models are used to predict developments in aviation insurance rates. The models are based on projections of loss experience, the US property and casualty surplus, and the long-term rate of interest. The results lead to the conclusion that 1996 premium rates will be lower than in 1995, whereby the hull rate should fall more than the liability rate. In 1997, hull rates can be expected to recover somewhat, while liability rates will continue their decline. For the year 2000, the model predicts prices that are generally below 1995 levels.

In the future as well, it will be necessary to come to terms with high price volatility in aviation insurance. Multi-year contracts with prices oriented to the loss experience of previous years are one means of addressing this problem. The relatively quiet current market situation in aviation insurance should be used as an opportunity to introduce such contracts.

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