

newsletter

Valuation

determining replacement values

In the underwriting process of property insurance, it is hard to tell whether the sum insured is the real value of the risk to be insured. This appraisal is all the more important, the higher the value of the risk.

- Sum Insured** The sum insured is one of the most important parameters in property insurance and serves a number of functions. It is the limit of indemnity in the event of a claim and at the same time the basis for calculation of the premium. The sum insured is also used as the basis for calculating the maximum loss potential (MPL, PML, EML, etc) and the associated NatCat exposure – data which the insurer needs to determine how much reinsurance cover he himself needs.
- Underinsurance** If the sum insured is less than the actual value of the property, the risk is under-insured, and in the event of a claim the indemnity payable by the insurer will be reduced in proportion to the degree of under-insurance. In practice, however, especially in the case of minor claims, the insurer may, for cost reasons, waive his right to check whether the risk was under-insured. In such cases, the indemnity is paid in full, although the insurer may have collected much less premium than he was actually entitled to charge.
- Qualified valuation** Although it is rather difficult in practice to determine the replacement value many years after construction, the specified sum insured will be all the more credible if it is based on a sound value appraisal. However, the crucial question is what constitutes a sound value appraisal and which cost factors it must take into account.
- Valuation method: capacity model** A valuation method known as the "capacity model" is quite common and is routinely used for determining the new replacement value of business assets. This method involves analyzing the values present on the basis of plant-specific reference parameters. These figures are normally limited to the capacity of the business and/or its output in units of finished product. For example, steelworks are rated in "tons of rolled steel per annum" and hotels on the basis of the "number of beds".
- Nevertheless, this valuation method using the capacity model typically yields inaccuracies and scatters bands in an order of magnitude of 20–30% (occasionally even 50% or more).

Valuation method: expert report

Another option for value appraisal is the inspection of buildings and equipment on site by a team of experts. This valuation method, by taking into account a large number of different parameters and numerous cost details, results in highly qualified findings with the best possible accuracy.

Although value appraisals based on expert reports afford distinct advantages, this approach also has a number of disadvantages. For instance, the detailed planning and the high manpower effort required for performing the inspections on site make this method impracticable for fast and low-cost value appraisals. It is thus evident that such a high-effort and expensive procedure can only be undertaken for really big risks. It is usually not economically viable to embark on such a project for small industrial facilities or commercial businesses.

Cost factors relating to specific plants

A value appraisal is frequently equated with a survey in the real-estate context where it is limited to identifying the cost factors immediately associated with the building only (structural fabric, façades, roof structure, etc). In actual fact, the overall value of a risk is the sum of three cost parameters: buildings, technical equipment and goods.

It is thus also important to take into account the technical installations and the details of the processes involved in the specific type of business, as these are key considerations determining the quality of the appraisal. Any comparison between different types of business must take into account that each branch of industry and each type of site occupancy call for a specific approach to identifying and calculating the values present. For example, in a power plant the cost parameters associated with the turbine play a dominant role, whereas in the hospital sector such factors would be practically negligible. Similarly, the cost factors represented by the blast furnace installations in a steelworks are of no interest in an appraisal of a business in the paper industry.

Cost factors relating to specific countries

In these days of increasing globalisation, many multinational corporations have international insurance programmes providing cover for subsidiaries or production facilities in other countries, for which value appraisals likewise have to be performed.

In order to achieve reliable results when appraising a business located in another economic area with different background conditions, it is essential to make allowance for country-specific indicators from the economic area concerned. In addition to country-specific macro-economic factors such as inflation and currency exchange rates, it is also important to pay attention to market-economy indicators such as the construction cost index, the machinery cost index or the labour cost index.

Updating of values

A material aspect with regard to the validation (and thus to the quality and accuracy) of value appraisals is the timeliness of the calculations, that is to say how close the underlying statistics were to the actual values in terms of time and how much time has elapsed since the value appraisal was performed.

If the market-economy indicators such as construction cost index, machinery cost index or labour cost index are tracked for any length of time, they can be expected to change and diverge from their baseline values at the start of the observation period. This makes it essential to update the value appraisal at regular intervals in line with the growth rate in the market concerned.

If the growth-related baseline data are not regularly re-aligned to rising costs in the specific local markets, value appraisals involving international comparisons produce completely distorted results and become practically worthless after only a few years.

Information for the underwriter

This puts the underwriter who has to rely on credible insurable values in a quandary. In his day-to-day business, he has little or no possibility of checking on whether the sums insured he has been quoted are based on a sound value appraisal or are merely the result of a rough estimate.

PISA - Valuation

To help the underwriter overcome this dilemma, Swiss Re has developed a user-friendly, PC-based value appraisal tool called PISA. PISA stands for **Property Insurance Sums Appraisal** and assists the insurer's underwriting process significantly by calculating replacement values for the buildings and contents typically present on the sites of selected types of business.

(Lit.: Dr. Michael Buser, Ralf Müller, NFT, 2/07, <http://www.asstech.com/en/pisa/index.html>)

The PISA value appraisal is modular in structure and has been tailored to the various occupancies. PISA focuses on the main cost clusters, especially in the case of industrial occupancies with complex process equipment. It logically integrates technologically related contexts and methodological analogies and consolidates them in mathematical computation models for the specific types of business. Intelligent link-ups between process-engineering paradigms and plant-specific contexts enable even users who are less familiar with the technical background to perform a qualified value appraisal.

Apart from making allowance for influences in specific countries and plant-specific cost factors, the PISA value appraisal also makes it possible to update values at any time.

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