

**ASSESSING THE FINANCIAL HEALTH OF INSURANCE UNDERTAKINGS  
TO PROTECT THE INSURED FROM THE RISKS TO WHICH THESE FIRMS ARE EXPOSED:  
SOLVENCY RULES**

**by Jean-Louis Bellando, Expert, OECD**

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**Introduction**

1. The need to give insurance policyholders special *protection* is now universally acknowledged. In judgements handed down on 4 December 1986, the Court of Justice of the European Communities (CJEC) gave four reasons why such protection is necessary:

- 1) Insurance is a highly particular service because it is linked to *future* events, the occurrence of which is uncertain at the time a contract is concluded.
- 2) An insured person may find himself in a very precarious position if he does not obtain payment after filing a claim for compensation.
- 3) It is very difficult for a person seeking insurance to assess the *terms of a contract* and the outlook for the insurer's future *financial position*.
- 4) Insofar as insurance has become a mass phenomenon, it is just as essential to *protect the interests of third parties*.

2. This protection is generally based on *regulation* and *supervision*.

The extent of regulation varies from one country to the next, covering such aspects as insurance products and their distribution, insurance undertakings and their officers, how these parties are monitored, market organisation, competition and so forth.

Supervision, in a wide variety of forms, is a prerogative of the State, even if in some cases it is partially delegated to the private sector.

The purpose of supervision is to ensure that insurance undertakings comply with the relevant laws and regulations, and in particular that they:

- 1) honour the *contractual* commitments (i.e. promises) they have made to the insured (legal supervision);
- 2) are *financially* able to meet their commitments at all times (*solvency* supervision).

An insurance undertaking is deemed *solvent* if it possesses the resources needed to honour its contractual commitments to insured parties and other policy beneficiaries, at all times and under any circumstances.

But insurance undertakings are exposed to risks that can jeopardise their ability to meet those commitments. Analysis of the causes of a number of failures around the world shows that the losses of insurance undertakings are attributable primarily to underpricing, underprovisioning, depreciation (and even misappropriation) of certain investments, default by certain partners (e.g. brokers or reinsurers) and the incompetence of their officers.

The aim of regulation and supervision is to preclude these risks and to limit and rectify the effects thereof.

3. Part I of this note will *analyse* these risks and remedies, while Part II will *summarise* the prudential arrangements that the various countries have instituted to protect the rights of the insured.

## **I. Analysis of the main risks to which insurance undertakings are exposed**

4. The following list is not exhaustive:

a) Risks arising from insurance operations (technical risks)

- underpricing;
- underprovisioning;
- inappropriate reinsurance;
- unforeseen administrative costs (which may be lumped together with “underpricing”).

b) Investment risks

- investment depreciation;
- interest rate fluctuations;
- insufficient liquidity;
- mismatched assets and liabilities;
- risks arising from the use of financial derivatives.

c) Risks of default by a partner (e.g. broker, reinsurer, shareholder, affiliate, etc.)

d) Risks arising from membership of a financial conglomerate

e) Risks arising from poor management.

### **1. Technical risks**

1. *Risk of underpricing* (inherent in insurance operations)

5. Premiums are set in advance, before the insurer knows the cost of the services it is pledging to deliver. Economists call this an inversion of the normal production cycle. It may be that even the most reasonable forecasts with regard to expenditure on *claims* (number, cost, assessment of damages by the

courts at the date of judgement rather than at the date of an event) and *overheads* (e.g. salary increases, etc.) are out of date. And because a very long time can elapse between payment of the premium (“premium” coming from the Latin word *primum*, meaning “first”) by the policyholder and performance of the service promised by the insurer, an insurer may in fact be in a state of failure even if it is experiencing no cash flow problems, with new premiums being used to pay out past claims.

To avoid this, premiums (P) must be sufficient to cover the insurer’s total costs, including claims (C) and acquisition and administrative costs (AAC), given the contribution of financial income (FI). The equation for insurance equilibrium may be written as follows:

$$P + FI = C + AAC \quad (1)$$

Equation (1) applies:

- gross of reinsurance;
- by year of occurrence of claims;
- overall, at the level of the insurance undertaking, and separately, in respect of each line of insurance or even by product.

Consequently:

P = Earned premiums for a given financial year  $n^1$ , i.e. issued premiums adjusted for provisions for unearned premiums.

C = Claims *incurred* during the same year  $n$ , i.e. comprising claims paid out and provisions for claims reported but not yet paid, as well as provisions for claims incurred but not reported (“late” claims or IBNR).

AAC = Expenses incurred to acquire new business and administrative overheads during the year in question. These expenses are apportioned by line of insurance and allocated to products on the basis of cost accounting statistics or, failing that, prorated by premium revenue.

FI = Financial income derived from premiums paid in advance and invested pending future claims. This investment income accrues naturally to the insureds as a group, as if their premiums were, in a sense, discounted. Only if the funds invested belong to the undertaking itself is the resultant income excluded from the underwriting equation: the split is determined using the ratio of technical provisions net of reinsurance<sup>2</sup> to the undertaking’s owners’ equity. Calculated in this manner, this income is apportioned between lines and products in proportion to their respective net technical provisions.

From equation (1), it follows that the equilibrium claims ratio (C/P) may be expressed as follows:

$$C/P = 1 + (FI - AAC)/P \quad (2)$$

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1. “Financial year” being an accounting term designating the interval between two successive balance sheets (e.g. established at 31 December of two successive years).
  2. The reference to provisions net of reinsurance is justified by the fact that reinsurers themselves invest the provisions that they are required to establish.

Because the amount of financial income apportioned to a given line of insurance will be greater if respective provisions for claims are greater, equilibrium claims ratios can differ significantly from one line to another.

For example, in France in 1998, as a percentage of earned premiums:

– Automobile liability	AAC = 21.1%	FI = 15.3%	C/P (equilibrium) = 94.2%
– Individual fire	AAC = 27.2%	FI = 6.0%	C/P (equilibrium) = 78.8%
– Total direct business	AAC = 23.3%	FI = 9.2%	C/P (equilibrium) = 85.9%

In France, automobile liability insurance is profitable if claims for the year amount to less than 94% of earned premiums; fire insurance for individuals is profitable with claims ratios of less than 79%.

In assessing a product’s profitability, other expenses that need to be taken into consideration are the cost of reinsurance and the constitution of an equalisation reserve to smooth out the undertaking’s results over time. These additional costs weigh more heavily if the portfolio of contracts in question is more modest (pursuant to the law of large numbers).

An undertaking is solvent if its *overall* result is positive, with any deficits in some lines offset by surpluses in others. Equity demands that the lines incurring deficits should not always be the same.

Some States are more stringent: Belgium, for example, requires that each line show a positive result each year.

The tie-in between profitability and solvency is highlighted here by the fact that, in order to safeguard its financial position in the future, an insurer must charge adequate rates. But “pricing errors” can have many causes:

- 1) Lack of reliable statistics, as in the case of new risks (e.g. dependency insurance).
- 2) Improper use of statistics available for a given population of insureds: inappropriate classification of risks, improper allocation of claim expenses, etc.
- 3) Underprovisioning of pending claims, arising from overly optimistic earnings forecasts.
- 4) Changes in insured risks: past statistics will not repeat themselves exactly in the future because of rising life expectancies, natural disasters, interest rate fluctuations, and so on.
- 5) Insufficient loading<sup>3</sup> for acquisition and administrative costs to cover the insurer’s actual expenses.
- 6) An aggressive policy of writing business in a given segment of the market, or of simply defending a portfolio of contracts that comes under attack from competitors that can support a higher claims ratio (such as mutual insurers having no commission-earning intermediaries).

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3. Definition: the policyholder pays a commercial premium which can be broken down into a pure premium and loads.

$$\text{Commercial premium (excl. tax)} = \text{pure premium corresponding to risks insured} + \text{loads corresponding to insurer's expenses}$$

- 7) Failure of marketing agents to comply with pricing instructions—because of poor supervision by the home office or because certain major distributors can impose their conditions.
- 8) Even if premiums are calculated properly using reliable statistics, the risk that the frequency of claims actually incurred in any given year will deviate from the theoretical frequency used in the calculation increases as the size of the insured population decreases.

Underwriting losses that could ultimately bankrupt an insurance undertaking may therefore arise from either the structure of its business (new risks, diversity of transactions, volume of business) or from management initiatives taken out of ignorance, incompetence, clumsiness or a deliberate attempt at conquest. The risk of underpricing cannot be totally separated from the risk of poor management.

Regulatory and supervisory authorities have instituted systems that foster and reinforce sound management decisions on the part of insurance undertakings:

- 1) Competition permitting, an insurer may load a margin of safety into its premiums. This margin is in some cases incorporated into the statistical base being used (e.g. mortality tables).
- 2) Reinsurance can shift the burden of disasters or of gaps between actual and expected frequencies to the accepting company.
- 3) Mutual insurers can levy assessments to offset underwriting losses after the fact.
- 4) A minimum of equity capital enables an insurer to offset underwriting losses for a limited period of time.
- 5) Some regulations impose prior review of rates, which must obtain government approval before being offered to the public. Elsewhere, pricing agencies calculate recommended rates under the aegis of insurance industry trade associations. Such solutions limit abuses, but government approval will never constitute a guarantee of long-term solvency.

In addition, prior rate review is in many cases an instrument of economic price controls: insurance is a service that must be remunerated, but disproportionate profits must not accrue to a powerful and organised insurer at the expense of weak and unknowing policyholders. But price controls have been known to jeopardise the financial health of market undertakings when the ceilings imposed are lower than the rates needed to break even.

European Union Directives prohibit systematic reporting and prior approval of rates. Directive 92/49/EEC on non-life insurance adds that “Member States may not retain or introduce prior notification or approval of proposed increases in premium rates except as part of general price-control systems.”

- 6) In respect of life insurance (Article 29 of Directive 92/96/EEC), and for the sole purpose of verifying compliance with national provisions concerning actuarial principles, the Member States of the European Union may require systematic communication of the technical bases (e.g. survival or mortality tables, interest rates, loads) used to calculate premiums and technical provisions. But this requirement may not constitute a prior condition for an undertaking to carry on its business.
- 7) Article 19 of the same Directive lays down an essential principle: “Premiums for new business shall be sufficient, on reasonable actuarial assumptions, to enable assurance

undertakings to meet all their commitments and, in particular, to establish adequate technical provisions.”

- 8) Supervisory authorities look not only at the financial position of an undertaking at a given point in time, but also at its operating environment, which has a decisive effect on its future finances. Even if controls do not take the form of prior rate review, they must be preventive in nature and involve close monitoring of premiums, loss frequency and technical results.

In France, confidential reports are sent to the supervisory authorities each year, listing the ratios of claims to premiums in each line of insurance and for each year of occurrence. Supervisors obtain further information on the rates applied to each product through on-the-spot inspections.

## 2. *Risk of underprovisioning*

6. Technical provisions account for more than 80% of an insurance undertaking’s liabilities. They measure the firm’s contractual obligations to its customers and other contract beneficiaries.

These obligations cannot be known exactly; they must be estimated, and the persons estimating them can make mistakes. There are a number of sources of error:

- 1) Technical provisions for long-term obligations are subject to wide variations over time, some of which are unpredictable and hard to quantify:
  - interest rate fluctuations on financial markets (mathematical provisions);
  - longer average life expectancies;
  - changes in inflation trends (which have an impact on the cost of claims and an insurer’s administrative costs);
  - new case law (e.g. in liability insurance).
- 2) In some lines of insurance, there can be a long interval between the time a claim is incurred and when it is settled in full; the information needed to assess a case is gathered only gradually. This is especially true of liability insurance involving pollution, medical care, ten-year construction guarantees, etc.
- 3) At its inventory date, an insurer is not yet aware of a number of claims that have been incurred but not yet reported (the so-called “IBNR” or “late claims”).

Inaccurate forecasting, legal or economic changes, inability to gather the necessary information, erroneous interpretation of information received or, in some cases, a desire to report higher earnings can all explain why an undertaking might fail to make adequate balance sheet provisions for its contractual liabilities.

Provisions for claims in non-life insurance, mathematical provisions in life insurance, and provisions for administrative costs in all cases are most vulnerable to forecasting errors.

Underprovisioning harms a firm’s financial position in two ways:

- a) Liabilities that should have been recognised during the year in question are deferred and will impair earnings in future years.

On the balance sheet, underprovisioning makes it possible to show a higher level of owners' equity. For example, assuming assets remain constant:

	(1)	(2)
Assets	100	100
Technical provisions	90	85
Other debts	5	5
Equity	5	10

Here, by reducing its technical provisions by 5.5%, the insurer has doubled the amount of equity appearing on its balance sheet.

All regulations concerning equity are tied in with the required level of technical provisions.

- b) Underestimating provisions for claims distorts an insurer's judgement concerning the equilibrium of its underwriting. The firm may therefore take commercial initiatives to bolster sales of certain products that appear to be profitable whereas in fact they will eventually incur losses.

To preclude these destabilisation factors, a great many countries have instituted regulations, although in most cases these are merely statements of principles and do not go into details concerning the calculation of technical provisions:

- 1) Technical provisions must at all times be *sufficient* to enable the insurance undertaking to honour the obligations arising from its insurance contracts, in view of what is *reasonably predictable*.
- 2) Technical provisions must comprise an *administrative provision* to cover expenses incurred to administer policies and future benefits until they expire or are extinguished.
- 3) Technical provisions must be calculated separately for each contract or each claim. Statistical methods may be used, however, as long as the provision thus constituted is sufficient.
- 4) The amount of the technical life insurance provisions shall be calculated by a sufficiently prudent *prospective* actuarial valuation, taking account of all future liabilities as determined by the policy conditions for each existing contract: all guaranteed benefits, including guaranteed surrender values, profit-sharing bonuses, options available to policyholders, etc.
- 5) Non-life technical provisions must be sufficient to allow settlement in full of claims incurred (loss provisions) or to be incurred (provisions for risks).

Amounts recoverable through subrogation or salvage are booked separately.

- 6) Auditors must check the level of technical provisions against information included in the confidential report that undertakings must file with the supervisory authority each year: with regard to claims in particular, statistical reports compare provisions and pay-outs, year after year and by year of occurrence. If they deem it necessary, the auditors go to the insurer's premises to conduct random on-the-spot checks of how provisions for claims are calculated.
- 7) Lastly, owners' equity can be used to offset insufficient provisions, to the extent that the capital exceeds the shortfalls.

## 2. *Investment risks*

7. The (in some cases very lengthy) time lag between premium collection and benefit pay-out makes an insurer the depository of a considerable amount of funds, which it tries to manage as well as possible in order to be able to meet its obligations. While it is necessary to carry technical provisions on the balance sheet, these liabilities must be covered by an equivalent volume of assets of select quality. It is this permanent coverage of technical provisions by real assets of at least equivalent value that affords an undertaking the means of honouring its obligations to its customers.

But the investments of insurance undertakings are exposed to a variety of risks that can jeopardise the rights of their policyholders:

### 1. *Depreciation risk*

Any investment can diminish in value following a stock or real estate market downturn (market risk), exchange rate fluctuations (in the case of assets denominated in foreign currency), rising interest rates on financial markets (causing a correlative drop in listed bond prices), or default by a debtor (unlisted bonds).

### 2. *Liquidity risk*

An insurance undertaking can have difficulty converting its investments to cash on satisfactory terms when it is time to meet contractual obligations. Liquidity problems can arise, for example, because brokers fail to remit substantial premium income, a drop in the stock market makes certain assets impossible to sell without incurring a loss, there is an accumulation of uncollected recourse on claims, etc. If redemption values are guaranteed, a life insurer is exposed to a massive wave of requests for redemption if interest rates rise, as policyholders decide to shift their savings to more lucrative products. At the same time, the prices of the bonds covering mathematical provisions decline, forcing the insurer to sell some at a loss in order to generate cash.

### 3. *Interest rate risk*

As we have seen, rising interest rates in financial markets trigger a depreciation of certain assets at a time when the owners of life insurance policies may wish to recover their investments, whereas falling rates make it more difficult to provide guaranteed high returns. High-yield bonds that mature when rates are declining can be replaced only by assets that are less lucrative, which will have an impact on the breakeven claims ratio (which is dependent upon the amount of FI, as shown above).

### 4. *Risk of mismatched assets and liabilities*

Technical provisions must be covered at all times by appropriate assets of equivalent value despite capital market fluctuations which affect asset prices and yields.

Those same fluctuations can also affect how technical provisions are calculated.

The risk is that variations in liabilities and assets will not be parallel.

5. *Valuation risk*

Audits may force an undertaking to write down the value of investments acquired for too high a price. This risk is especially applicable to strategic shareholdings (see below).

6. *Risks arising from transactions involving financial derivatives*

The use of financial derivatives entails special risks above and beyond the market, credit and liquidity risks stated above:

- A leverage effect can create substantial loss potential.
- Staff may not be sufficiently qualified to deal in derivatives.
- There is a total lack of regulations in a great many jurisdictions.

8. The regulations adopted in most countries make it possible to reduce considerably the risks involved in the investments that insurance undertakings make to cover their technical provisions.

1) Investments eligible to cover provisions are *selected*.

European Directives 92/49/EEC and 92/96/EEC established exhaustive lists of allowable investments, all of which meet criteria for safety, return on investment and liquidity.

Accordingly, the lists generally exclude unguaranteed loans, gold ingots, raw materials and buildings located outside urban areas.

Investments that are guaranteed by the government of an OECD country are considered the safest; securities listed on a major stock exchange are the most liquid; bonds are considered to yield good returns, and so on.

2) Investments must be *diversified* and split amongst the various categories of assets. Buildings and equities are generally limited to no more than a certain percentage of technical provisions, e.g. 40% and 65% in France. Restrictions are always tighter for unlisted equities than for listed ones.

European Directives limit individual investments to:

- 10% of technical provisions in respect of a building;
- 5% in respect of equities, notes, bonds and loans issued by any one issuer.

3) Investments are subject to prudent and reasonable valuation rules

In some countries, assets are carried on the balance sheet at historical cost; a depreciation provision is booked either permanently, if the asset is deemed unlikely to recover its initial value, or temporarily, if the decline in value can be considered cyclical: here, the provision is calculated line by line or in the aggregate. In some countries, assets must be carried at their all-time lowest value at the date of the balance sheet.

Elsewhere, the balance sheet records market value, and major fluctuations are possible. “Resilience tests” measure predictable swings, and the results are held up to the undertaking’s equity or give rise to the constitution of a special technical provision. Supervisors can always

seek the assistance of independent experts if they have any doubts as to the value of a building or unlisted shares.

- 4) Monetary risk is averted by congruence rules, which require that obligations in one currency be covered by assets denominated in that same currency.

Allowable exceptions are generally kept under a certain threshold.

- 5) In some countries, risks arising from the use of financial derivatives are lessened by quantitative or qualitative limitations set by law, the supervisory authority or an undertaking's own rules. Training staff who perform such transactions and separating decision-making and control functions also lessen the risk of losses on derivatives.
- 6) It is incumbent upon statutory auditors to verify that the investments listed on an insurance undertaking's balance sheet do in fact really belong to the undertaking and have not been pledged as security for third parties.

### **3. Reinsurance risk**

9. Reinsurance risk comprises a technical risk and, at the same time, a risk of debtor default.

#### *1. Technical risk*

Reinsurance relieves a direct insurer of liability for some of the risks it has assumed. Technically, reinsurance fulfils an insurer's need to constitute a pool of risks that are similar in nature and value. A reinsurer:

- Assumes insured risks in excess of a given threshold, thus making the direct insurer's portfolio more uniform (capping).
- Covers excess losses, in terms of number of claims and total cost, as compared with the statistical average used to calculate premiums (smoothing). An insurer's liability pool at any point in time is in fact never a completely faithful reflection of the risks taken into account to set rates.

Reinsurance treaties must be tailored to the circumstances of each insurer and protect them against catastrophic losses or an abnormal accumulation of losses. In addition, the cost of suitable reinsurance needs to be within the reach of an insurance undertaking; if it is not, then the insurer's premiums need to be raised.

The December 1999 storms in France illustrated the technical reinsurance risk of undertakings that exceeded their reinsurance ceilings, even though those ceilings had as a rule been quite appropriate, based on recent weather patterns in the same geographical area.

Supervisors must therefore check the adequacy of reinsurance treaties.

#### *2. Risk of debtor default by a reinsurer*

Through a treaty, a reinsurer assumes a portion of the direct insurer's liabilities vis-à-vis its customers. This is reflected on the direct insurer's balance sheet by the fact that the amount of the

reinsurer's relevant technical provisions is carried as an asset<sup>4</sup>. If the reinsurer defaults on its commitments, however, the insurer is still required to pay all claims in full, since it is contractually obligated to do so. There is no legal relationship between the insured and the reinsurer.

Default by a reinsurer can therefore shake an undertaking's financial health if certain precautions are not taken:

- a) By carrying its technical provisions as a liability gross of reinsurance, a direct insurer demonstrates that it bears sole responsibility vis-à-vis its customers.
- b) Offsetting this liability is an asset representing claims on the reinsurer (the reinsurer's share of gross technical provisions on current account).

In many cases, reinsurance agreements provide for guarantees to protect these claims:

- The reinsurer may leave an amount equal to its share of technical provisions with the direct insurer (cash deposit).
  - The reinsurer may remit securities to a depository as security for the direct insurer.
  - The reinsurer may request that a bank provide the direct insurer with a letter of credit that the insurer could utilise if the reinsurer defaulted on its obligations.
- c) To negotiate such guarantees is sound management. But regulations and standard practice differ significantly from one country to the next.

In some jurisdictions, claims on reinsurers cannot be used to cover gross technical provisions unless they are protected by a pledge of securities or a letter of credit. In France, this constraint compels direct insurers that lack substantial equity to obtain deposits, security or guarantees from their reinsurers.

Elsewhere, the quality of the reinsurer is taken into consideration. Some signatures are sufficient unto themselves. While certain specialised agencies rate reinsurers, these ratings should in no way dispense supervisors from all investigation of reinsurer solvency. The Insurance Committee's Group of Governmental Experts on Insurance Solvency is drafting proposals for exchange of information amongst supervisory authorities, in the form of a voluntary multilateral agreement under which each signatory country would appoint a national co-ordinator who would provide information about reinsurers automatically or on request.

- d) It is the responsibility of insurance undertakings to ascertain the information they need to assess the soundness of the reinsurers with which they deal.

On the proposal of the Insurance Committee, the OECD Council on 25 March 1998 adopted a *Recommendation on Assessment of Reinsurance Companies* [C(98)40].

In it, the Council recommends that the OECD Member countries:

- “1. invite insurance companies under their supervision to take all appropriate steps to assess the soundness of reinsurance companies to which they cede or propose to cede business...;

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4. Unless the insurer's own technical provisions are booked to liabilities *net* of reinsurance.

2. invite reinsurance companies under their supervision, or established within their territory, to provide, on request, information to insurance companies, which will assist the latter in making assessments.”

The Council also invites non-member countries to “take account of the terms” of this Recommendation.

The OECD Recommendation should incite supervisors to check that the reinsurance managers of insurance undertakings have in fact assessed the financial health of their partners and have not proceeded merely on the basis of a rating agency’s label or the advice of a specialised broker.

#### **4. *Risk of default by a special partner***

##### *1. Brokers*

10. Brokers who market policies for insurers collect premiums, settle claims and may be delegated general administrative responsibility. In such cases, they continuously hold funds on their partners’ behalf.

Default by a broker is especially detrimental to an insurer because the latter incurs liability as soon as the broker receives premium payments from the insured—at least according to case law in a large number of countries.

Moreover, if a single broker provides an undertaking with a substantial proportion of its total business, that broker is in a position to exert dangerous pressure on the insurer’s pricing and risk acceptance policies.

It is in insurers’ interest to minimise the funds they leave at their brokers’ disposal; they should also spread their business outlets and not allow any one distributor to exert too much influence over their marketing policies. For these reasons, most regulations prohibit claims on intermediaries from being included amongst the assets used to cover technical provisions.

##### *2. Shareholders*

An insurance undertaking set up as a joint-stock company must be able to call upon its shareholders to cover losses or finance new business; it would be in serious trouble if its shareholders were not in a position to meet its needs. An insurer’s failure is sometimes the consequence of default by its leading shareholder.

To preclude this, regulators in a number of countries have instituted supervision of shareholders, implementing some of the following provisions in each instance:

- 1) Designation of a primary (“reference”) shareholder to be the supervisory authority’s automatic contact in the event the insurance undertaking is in difficulty.
- 2) Detailed information about shareholders, which will be of paramount importance to the licensing authority, in licence applications.
- 3) Obligation to report or obtain prior authorisation for any acquisition, increase or divestment of an equity interest in an insurance undertaking. Failure to comply with this requirement is

punishable (by order of the court) by suspension of the voting rights attaching to the shares transferred illicitly.

- 4) Request for information submitted to the relevant supervisory authorities if the shareholders concerned are credit institutions, investment firms or insurance undertakings having their head office in another country. Here, the organisation of cross-border exchange of information would seem essential.
- 5) If potential shareholders are not in the financial sector, the competent supervisory authorities should require audits of their financial positions, to be conducted by specialist experts, before granting authorisation or allowing a change of shareholders.

### 3. *Subsidiaries and affiliates*

An undertaking having shareholdings in other firms may be compelled to provide those firms with additional funds. This constitutes *contagion risk*, or the risk that an affiliate's difficulties could adversely affect its parent company.

The measures taken to protect the insured against knock-on defaults vary in severity, depending on the country:

- 1) In some jurisdictions, insurance undertakings are prohibited from acquiring equity interests in credit institutions (and vice versa).

In Japan, until 1998 a life insurance company could not control a non-life company (or vice versa).

- 2) In a number of States, shareholdings in other insurance companies cannot be used to cover technical provisions.
- 3) European Directive 98/78/EC of 27 October 1998 instituted supplementary supervision of insurance undertakings belonging to an insurance group by introducing a "solo plus" rule to eliminate double use of capital between insurance undertakings and related undertakings.

The European Union is considering similar provisions that would be applicable to financial conglomerates, encompassing credit institutions, insurance undertakings and investment firms.

### 5. *Risk arising from membership of a group or financial conglomerate*

11. The increasing numbers of groups and financial conglomerates around the world pose complex problems for supervisory authorities. Within a group or conglomerate, an insurance undertaking is exposed to additional risks, the severity of which depends on the conglomerate's uniformity, its dimensions and the international dispersal of its business.

These risks include:

- 1) Double use of capital:

Capital that appears to be available to guarantee the commitments of a group undertaking is in fact tied up in other undertakings belonging to the same group.

2) Risks arising from intra-group transactions:

Transfers of funds or of risks may jeopardise the solvency of a given entity.

3) Opaqueness:

Information useful for the supervision of an insurer may be situated in other undertakings located in other countries or not subject to separate prudential supervision.

4) Contagion

The vicissitudes of a firm belonging to a conglomerate can infect healthy businesses within that same group.

The misadventures of one entity can reflect poorly upon companies bearing the same name, the same initials or the same brand, or that operate out of the same premises.

Financially, losses in one line of business reduce the amount of capital available to other parts of the group.

5) Inter-sectoral conflict of interest

A conglomerate may have to make trade-offs, for example, between the interests of the insured and the participation of a life insurance undertaking in the share capital increase of a banking subsidiary at the expense of future profit-sharing.

6) Regulatory trade-offs

If an activity can be carried out by either an insurance company or a bank, an entrepreneur will choose the structure requiring the least equity.

With regard to guarantees, for example, it is better for large risks to be assumed by an insurance undertaking and other risks by credit institutions.

To limit these risks, Directive 98/78/EC on supplementary supervision of insurance undertakings in an insurance group:

- a) maintains “solo” supervision of undertakings;
- b) introduces a “solo plus” requirement for adjusted solvency;
- c) requires that the main intra-group transactions (e.g. loans, guarantees, reinsurance, transfers of investments, management agreements, etc.) be reported to the supervisory authorities;
- d) requires that the supervised insurer have mechanisms in place to produce any information that would be relevant for the purposes of such “solo plus” supervision;
- e) organises co-operation amongst European supervisory authorities, with possible appointment of a co-ordinator or lead authority.

The Joint Forum, which brings together the supervisors of insurance undertakings, credit institutions and investment firms, is making plans for special supervision of financial conglomerates:

- co-operation amongst the supervisory authorities of the various industries and countries concerned;
- sharing of prudential information; procedure for appointing a co-ordinator;

- “fit and proper” criteria for corporate officers;
- capital adequacy requirements.

## 6. *Other risks*

12. The authors cite other risks which could in fact be included with one or more of the risks described above:

### 1. *Growth*

Portfolio growth is sometimes achieved at the expense of elementary precautions, forgetting about risk selection and adequate pricing. The result of this can be a deteriorating claims ratio. New undertakings are especially vulnerable to the financial consequences of such an approach.

Growth risk could be seen as a form of underpricing.

### 2. *Liquidation*

If an insurance undertaking goes out of business, it may no longer have the financial resources needed to administer its obligations to customers and to settle their claims in full. Appropriate technical provisions will preclude such winding-down problems.

This is therefore a form of underprovisioning.

### 3. *Operating expenses*

The loading of premiums should cover an insurer’s expenses. Loads may prove insufficient if the contract length exceeds that of premium payments (as in life insurance), or if the time needed to settle claims and obtain recoveries is too long.

This risk can be included with the risks of underpricing (insufficient loading) and underprovisioning (administrative provisions must be constituted).

In some countries, the tax authorities do not allow administrative provisions. In Germany, new undertakings are required to constitute an organisational fund to which nonrecurring expenses may be charged.

### 4. *Guarantees on behalf of third parties*

Guarantees given to third parties (off-balance-sheet commitments) regarding the fulfilment of financial obligations assumed by those parties may lead to heavy losses. This is especially dangerous in the case of performance guarantees for all of the business of an undertaking, and of a subsidiary in particular.

Wisdom would dictate that insurance undertakings should be prohibited from granting any such guarantees to firms engaging in lines of business other than insurance.

Intra-group guarantees must be taken into consideration when assessing contagion risk.

## **7. Risk of poor management**

13. The quality of an insurance undertaking's officers and directors is a paramount factor in its financial health. Incompetent or fraudulent management exposes a firm to serious failings. Management risk can be situated upstream from underpricing, underprovisioning, inadequate investment, etc.

The regulations of some countries set quality criteria for the officers of insurance undertakings; all supervisory authorities are especially attentive to the competence of corporate executives.

- 1) The laws of some countries set minimum requirements for managing directors: university degrees, experience (number of years in the insurance industry), etc.

More generally, "fit and proper" tests are applied to officers when licensing applications are considered and when there are changes in management.

In some cases, supervisors can be especially strict concerning the experience of a new officer. They may be tempted to reject a broker, for being likely to favour growth at the expense of sound fundamentals, or reserved vis-à-vis a banker, who may not always be aware of the special features of life insurance contracts.

- 2) On-site inspection of a company's operations provides an opportunity to check the effectiveness and competence of its managers. An insurer's command of distribution networks, pricing policies, tracking of claims and earnings, risk selection, administrative organisation, financial management, effectiveness of reinsurance, internal controls, etc. reflect upon the professionalism, experience and reliability of the firm's divisional and top management.
- 3) On an international level, the supervisory authorities of the various financial markets make arrangements to exchange information about the competence of the managers of cross-border groups.
- 4) Nevertheless, regulations to protect privacy, amnesty laws and the aversion of some countries' courts to subjective assessments can constitute obstacles to the application of "fit and proper" tests.
- 5) Requirements concerning the quality and reliability of managers should be extended to statutory auditors, appointed actuaries, experts and rating agencies, all of which can help distort the image that a company projects.

## **Conclusion**

14. An insurance undertaking is exposed to a large number of highly diverse risks that jeopardise its financial health and can bring about its downfall. All countries have experienced such occurrences.

Most of these risks are peculiar to insurance operations, either directly (inversion of the production cycle, technical provisions constituting the bulk of balance sheet liabilities) or indirectly (assets must be managed to match the nature and structure of commitments). Managers, as well as supervisors, should be capable of assessing what distinguishes an insurance undertaking from a credit institution or an investment firm.

The subdivisions adopted here between technical, investment and management risks are not perfect. There is some overlapping, and some risks are triggered by others.

Prudential rules imposing an accumulation of requirements to cover each risk that could potentially weaken an insurance undertaking would be inherently wrong, since insurance is based on the principle of pooling risks that can offset each another. Clearly, in the case of incompetent management there is a rather abnormal accumulation of errors. On the other hand, space risk and the risk of natural disasters pose more of a bankruptcy threat to a specialised insurer than to a diversified one.

In the sections above, the preventive, corrective or reparative measures adopted by regulators and applied by supervisors have in each instance been presented together with the risks that they are supposed to limit, prevent or rectify. But the solvency of an insurance undertaking cannot be compartmentalised. Only a *comprehensive* approach is significant, and Part II summarises and consolidates the regulatory and supervisory arsenal intended to protect the insured.

## **II. A comprehensive regulatory and supervisory approach to solvency**

15. Solvency supervision is a complex process which can be broken down into four aspects that must be taken together:

- 1) a solvency ratio;
- 2) a triple test of balance sheet soundness;
- 3) operating conditions, which are essential to an insurer's future (prospective solvency);
- 4) outside forces affecting the firm's financial health.

### ***1. Solvency ratio***

16. A solvency ratio determines whether an undertaking meets a minimum capital adequacy requirement.

This is because an insurer's losses are covered by charges to its shareholders' equity—the greater the equity, the more remote the probability of failure.

Capital is scarce and expensive, however, and even substantial equity can be eroded severely and rapidly as a result of mismanagement, as has been witnessed virtually everywhere. Managers "reassured" by the wealth of "their" undertakings sometimes take dangerous risks by taking on underpriced contracts or making investments that are not as safe.

As a rule, the components of capital that are included when calculating the solvency ratio encompass:

- 1) All elements of owners' equity free of any foreseeable commitment, i.e. not corresponding to commitments or debts: share capital, formation fund (for mutual insurers) and reserves (resulting from accumulated surpluses of past years neither distributed to shareholders nor refunded to members, and net of profit tax if applicable).

These liabilities are reduced by the amount of intangible assets.

- 2) [*in some countries*] Subordinated debt, treated as near-equity when the rights attaching to the debt in the event of liquidation may be exercised only after those of other creditors, including

the insured. Such borrowings therefore constitute an additional guarantee for the insured, providing it is not possible to organise their redemption if the undertaking is in difficulty.

- 3) Unrealised capital gains on investments, equal to the aggregate difference between the market value of the investments and the value for which they are carried on the balance sheet.

This applies essentially to undertakings in countries that require investments to be carried at their historical cost, and it eliminates all distortion with undertakings that use market value.

- 4) Potential assessments that mutual insurers can levy on their members, if their by-laws so allow.

Assessments are an appropriate means of adjusting operating income after the fact, but they require that the legal, commercial and administrative conditions for effective collection are all satisfied.

17. While regulations are largely convergent, apart from minor details, with respect to elements that can be included in the numerator of the solvency ratio, the solutions for determining the minimum requirement diverge. Moreover, none of the formulas currently in use around the world can be considered fully satisfactory, insofar as:

- The choice of reference economic aggregate (premiums, claims, technical provisions) may tend to penalise cautious firms.
- To differentiate margin requirements depending on the line of insurance in question may not have any basis in technical or economic reality, the trend now being for undertakings to sell multi-line contracts, and the debate over the reputedly most dangerous lines still being open, since product approaches remain so different around the world.
- The offsetting of risks that characterises any insurance business may not be taken into account properly: a correlation coefficient is very difficult to determine.

Moreover, no solvency ratio currently takes account of the fact that a specialised undertaking is more exposed than a diversified one.

Lastly, a financially troubled undertaking will be tempted to reduce its technical provisions to make it appear to have a greater capital base.

The solvency ratio does have at least one use, however—to trigger binding intervention by the supervisory authority as soon as it is not complied with. It must therefore constitute an incontestable, and thus *simple*, threshold.

Independently of any ratio, equity capital is necessary at each stage in the existence of an insurance undertaking.

- a) When it is *constituted*, an insurance undertaking must have equity to finance its start-up and production. Moreover, a new company's inexperience makes it more prone to pricing errors. Lastly, the gaps between forecasts and actual outcomes tend to get larger as the size of policy portfolios gets smaller.

Hence the need for equity capital (or a start-up fund) that is adequate in view of the undertaking's planned business.

- b) For an undertaking running as a *going concern*, equity capital can be used to finance new operations (purchasing subsidiaries abroad, launching new products, etc.). It also provides a certain safety net for top management “decision-makers” who are always at risk of making errors inherent to their functions: promoting inadequate prices, misjudging certain commitments, making poor investments, and so on. These classic errors of judgement can generate losses that will erode the firm’s equity capital; the extent of that erosion will depend on how quickly managers detect their errors and can formulate—and implement—effective remedial action.
- c) When a firm is *liquidated*, new debts arise that are not incurred in the course of ongoing operations. These include staff severance benefits and expenditure inherent in winding up a business that are incurred to collect receivables, take stock of debts and divest investments under conditions that may be rather unfavourable. A liquidation balance sheet therefore shows a rise in liabilities and a decline in assets.

A firm must have enough equity capital so that the claims of all creditors can be satisfied, in spite of everything. A minimum solvency requirement could therefore be gauged on the basis of a firm’s salaries and balance sheet receivables. But such an approach, on behalf of the creditors of an undertaking that is being wound up, deviates from the overriding goal of prudential rules, which seek to protect the persons insured by a healthy company.

## 2. *Triple test of balance sheet soundness*

18. The triple test of balance sheet soundness checks that:

- Technical provisions are adequate.
- The provisions are covered by quality assets of at least equivalent value.
- Equity capital exceeds a minimum standard.

The application of strict prudential rules to technical provisions and the assets covering them limits the risks of:

- underprovisioning;
- underpricing;
- default by debtors (e.g. reinsurers);
- depreciation of investments.

These rules are described in the relevant paragraphs of Part I.

The ratio by which technical provisions are covered by selected investments and receivables constitutes a significant *early warning system*, the effectiveness of which is enhanced if the rules governing the calculation of technical provisions (e.g. gross of reinsurance) and the choice, dispersion and assessment of investments are strict, and if compliance with those rules is checked carefully, through on-site audits in particular.

A company may meet the minimum solvency requirement yet at the same time fail to provide regulatory coverage of its technical provisions because premiums are not collected quickly enough to be invested, because reinsurers do not provide enough guarantees, investments are poorly dispersed or because the value of ineligible securities is too high. All of these factors can aggravate an undertaking’s exposure to investment risk and the risk of debtor default.

The “triple test of balance sheet soundness” is an essential aspect of solvency supervision, but it is not enough to assess the financial health of an insurance undertaking over time.

### 3. *Operating conditions*

19. The conditions under which an insurance undertaking operates are essential for its future.

Even if supervision does not involve prior review of rates, it must have preventive effects.

The exercise of preventive supervision over the solvency of an insurance undertaking entails continuous monitoring of all of the most diverse aspects of its business—moral and legal, technical and financial.

Only through on-the-spot immersion, on an undertaking’s premises, can a supervisor assess the conditions under which a firm operates.

“Operating conditions” refer to all of the factors that can affect the results of an insurance undertaking, and thus its financial health:

- nature and diversity of risks insured;
- control over distribution channels;
- pricing and risk-selection policy;
- monitoring of claims and results by product;
- reliability of the accounts;
- administrative organisation; effective computer systems;
- financial management: compliance with instructions from the Board of Directors, audit of transactions, especially those involving financial derivatives;
- effectiveness of reinsurance; selection criteria for reinsurers;
- internal auditing procedures;
- monitoring of delegated management;
- review of disputes and litigation;
- analysis of off-balance-sheet commitments (guarantees given, etc.).

These observations are paramount in assessing managerial competence and evaluating a company’s “particular” need for equity capital at a given point in time—corresponding to the time needed to detect a management error (e.g. an insufficient premium) and correct it.

Regulatory solvency requirements, determined from average figures within a given market, are therefore adjusted on a case-by-case basis, incorporating company-specific elements that shape a firm’s future. The supervisor’s goal is not to check whether a firm was solvent at the date of its last balance sheet, but rather to assess the company’s ability to fulfil its obligations in the short term and farther into the future.

To do that, however, supervisors require the legal tools needed to intervene whenever they deem that the interests of the insured are, or could be, in jeopardy. Regulations must give supervisors special powers to wield in exceptional circumstances: to require an increased solvency margin; further restrict the elements eligible to constitute the margin; limit the possibility of reducing the margin requirement through reinsurance.

However, a supervisor's reaction will always remain influenced by a review of the environment in which an insurance undertaking operates.

#### 4. *The environment in which an undertaking operates*

20. The external factors affecting the financial health of an insurance undertaking are extremely varied: competition, local regulations, the qualifications of outside auditors, the behaviour of customers and delegated managers, the roles of the firm's traditional partners (reinsurers, members, shareholders), membership of a group or financial conglomerate, etc.

- 1) In a given market, *regulatory* constraints can always affect a company's income (economic controls capping rates) or financial position (limits on foreign investment).
- 2) The severity of *competition* varies by region and line of business. A single-line company is especially vulnerable if wealthier multi-line insurers move into its segment of the market.
- 3) External or statutory auditors must certify a firm's published annual accounts and attest that the figures shown are a true reflection of the company.

Within the European Union, the obligations of statutory auditors were reinforced by Directive 95/26/EC of 29 June 1995 (the so-called "post-BCCI" Directive): they must rapidly advise the supervisory authorities of any fact or decision concerning the undertaking that might:

- constitute a breach of the regulations;
- jeopardise the continuity of the business.

Statutory auditors, who are appointed to assist shareholders, are therefore called upon to help protect the insured as well, once it has been acknowledged that their competence and reliability constitute an additional guarantee of corporate solvency. In some countries, their reticence to inform supervisors may be sanctioned by suspension, replacement or a fine.

- 4) *Delegations of authority to write or administer policies* give rise to additional risks. Authorised agents are always at risk of exceeding their mandates, thereby developing risks of underpricing and excessive growth.

Supervisors must have a right of follow-up enabling them to check whether insurers have in fact made proper oversight arrangements, and whether the data recorded by headquarters are consistent with the transactions carried out by agents.

- 5) Members, shareholders and reinsurers are financial partners who can help bolster a direct insurer's equity capital if necessary.

For instance, a *member* of a mutual insurance association with variable contributions is legally required to obey calls for supplementary contributions. This potential component of financial resources is incorporated into the calculation of the European solvency margin.

For their part, an undertaking's *shareholders* must pay in the amount of capital that they have subscribed, but they can always refrain from taking part in a subsequent share capital increase. The notion of "shareholder's duty" would seem to conflict with the capitalist principle of "limited liability" under which the amount of an investment can always be limited to the amount of money already put into the capital of a business. To compel an

insurance undertaking's shareholders to go any farther could scare off investors. Supervisors must therefore settle for "fit and proper" tests.

- 6) A *reinsurer* can provide financial support, but reinsurance treaties are designed to enable accepting companies *ultimately* to recover their funds.

Recent years have seen the spread of financial reinsurance treaties in which the financing function prevails over that of risk transfer. Treaties of this sort are dubbed "cosmetic" when they are formulated to enable income and assets to be recorded immediately, whereas the corresponding expenses and liabilities are booked only subsequently, in violation of the principle of prudence.

An increase in net assets attributable to a cosmetic contract booked in violation of the principle of prudence should not be included as a component element of a direct insurer's solvency margin.

In computing the European solvency margin, reinsurance is factored in *quantitatively*, with no *qualitative* discrimination.

- 7) The fact that an insurance undertaking belongs to a *group* (comprised essentially of insurance companies) or a *financial conglomerate* (combining credit institutions, insurance undertakings and investment firms) may either strengthen its financial position or, on the contrary, weaken it.

An insurance undertaking may be able to find the financing it needs within the group or conglomerate to which it belongs.

Conversely, a healthy undertaking may be jeopardised by its membership of a group or financial conglomerate, which exposes it to special risks: double use of equity capital, transfers of funds from one entity to another, contagion, opaqueness, regulatory trade-offs, and so on.

Additional supervision of insurance undertakings belonging to a group was instituted in the single European market by Directive 98/78/EC. "Solo plus" supervision is performed in addition to (but does not substitute for) "solo" supervision of each legal entity.

- An adjusted solvency ratio compares group equity with a solvency margin computed from requirements applicable to each of the group's component entities.

The three (prudentially equivalent) methods of calculation laid down by the Directive (consolidation; deduction; deduction - aggregation) eliminate double use of equity capital.

- Wealth transfers from one group entity to another via internal transactions must be reported to the supervisory authorities, who then determine whether the terms involved are detrimental to the interests of the insured: disposals of investments, loans, guarantees, reinsurance, expense-sharing agreements, etc.
- For the supervision of cross-border groups, supervisory authorities co-operate under the aegis of a co-ordinator or lead manager, who in theory is the supervisory authority having jurisdiction over the group's leading insurance undertaking, or its main entity.

The information exchanged in this connection focuses on the competence and probity of corporate officers, as well as on the reliability of accounts.

The Joint Forum, comprising representatives of the Basle Committee on Banking Supervision, the International Organisation of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS), is preparing comparable provisions for financial conglomerates. The numerous ties that have been forged in recent years between firms in different financial sectors have prompted a number of countries to merge the respective regulatory authorities. Today, such initiatives are controversial, insofar as:

- The number of true financial conglomerates in the world is low: in the case of most institutions classified as “bancassurers”, one line of business is largely dominant.
- The joint supervisor must resolve conflicts of interest, such as when a life insurer is invited to increase the capital of its banking subsidiary, to the detriment of its customers’ future share of the profits.
- Insurance is a business entailing very specific risks which must be addressed with appropriate regulations. The supervision of insurance undertakings calls for especially well experienced specialists.

## **Conclusion**

21. The solvency of insurance undertakings is a major concern for supervisors, but also for consumers, brokers and investors—the latter being extremely attached to the return on their investment as well.

An undertaking on the lookout for fresh capital and new shareholders will seek to attract investors with appealing promises about those returns. If its operations are profitable, such a firm could then bolster its financial health by retaining a substantial share of the earnings. But demanding shareholders will take out large dividends.

The combination of keen competition on insurance rates and mounting pressures to give investors greater returns constitutes a threat to the firm’s fundamentals and financial health, contradicting the safety imperatives needed to protect the insured and maintain a good reputation in financial markets.

These pressures should not prompt supervisors to lessen their requirements—quite the contrary.