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THE SUPERVISION OF INSURANCE SOLVENCY: COMPARATIVE
ANALYSIS IN OECD COUNTRIES

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I. Introduction

The insurance business is characterised by a reversal of the conventional operating cycle: insurance companies take in premiums, i.e. remuneration for insurance services rendered, before paying out any benefits in respect of claims. When they invest the funds thus collected, insurers run certain risks in respect of depreciation, liquidity, interest rates, matching (i.e., mismatching assets and liabilities), credit, etc. In addition to these risks, which are common to all financial institutions, there are risks unique to the insurance industry—insufficient premiums, miscalculation of technical provisions, adverse change in loss frequency, catastrophic losses, reinsurance risk, etc. Lastly, like any business, an insurance company is subject to risks of a more general nature, such as incompetent or dishonest management or poorly managed growth.

The primary function of an insurer is to manage all these risks in such a way as to be able at all times (or at least in the vast majority of circumstances) to meet its commitments to policyholders and beneficiaries. It is this capability of an insurer to meet its commitments that is known as “solvency”.

Nonetheless, because of the structure, size and complexity of the insurance industry, it is fairly difficult for policyholders or beneficiaries themselves to check their insurer’s solvency. It is therefore for the primary purpose of protecting consumers that countries have instituted systems for supervising the solvency of insurance companies. Such supervision also makes it possible to guarantee the insurance industry’s financial soundness and thus to enhance public confidence, which is vital to the industry’s development.

This study is based essentially on the national reports on the supervision of insurance solvency in the OECD countries that are compiled in this publication. However, it also draws on other work carried out at the OECD, such as that of the Group of Governmental Experts on Insurance Solvency, and at other forums, including the Conference of Insurance Supervisory Authorities of the Member States of the European Union and the International Association of Insurance Supervisors.

Like the national reports, our study will focus on the following major issues:

- Regulations governing the supervision of insurance solvency (regulatory scope and typology of solvency supervision systems);
- Incorporation of the various risks into solvency supervision (concerning capital adequacy requirements, technical provisions and investments, risks specific to groups and financial conglomerates, and other risks);
- Practical organisation of supervision (status and main missions of the supervisory authorities and resources at their disposal, integrated or separate financial supervision authority, the role of auditors and actuaries within companies);
- Managing financial difficulties and cases of insolvency (intervention thresholds, rehabilitation measures, protection of policyholders in the event of liquidation).

II. Regulations governing the supervision of insurance solvency

A. *Introductory remarks*

The complexity of the insurance industry, and thus the great difficulty for consumers themselves to gauge the solvency of their insurers, have prompted the governments of all of the OECD countries to institute systems of varying scope to supervise the insurance business.

1. A virtual lack of regulation in New Zealand

In this regard, **New Zealand** is a very special case in that regulation of the insurance business is extremely limited.

No solvency or capital adequacy requirements are in fact imposed on life insurance companies, apart from the placement of a NZ\$ 500 000 (about EUR 235 000) security deposit with a public administrator and the filing of accounts and the actuary's annual report with the Secretary to the Government Actuary. The Government Actuary may then require additional information and request that a company be placed under court supervision if he deems that its financial position appears fragile.

In non-life insurance, the sole regulatory requirement is that companies submit each year to review by one of the approved rating agencies¹, that they register the rating obtained with the Companies Office and that they disclose this rating at the conclusion of each new contract and at each renewal. However, members of the Insurance Council, a trade association of New Zealand non-life insurers, pledge to abide by the recommendations of the Fair Insurance Code and to maintain a solvency margin (the ratio of capital and reserves to net premiums) of at least 20%.

It could therefore be said that the insurance market is largely self-regulated in New Zealand.

2. Regulatory harmonisation in Europe

The solvency rules in force in the European Union were introduced by the first non-life directive in 1973 and the first life insurance directive in 1979. These directives were subsequently amended, and insurance sector regulations in the European Union are now based essentially on the third-generation directives from 1992. In 1998, these directives were supplemented by a directive on insurance groups, and a proposed directive on insurance intermediaries is currently being negotiated. Lastly, an update of prudential standards has also been planned².

1. Standard & Poor's and A.M. Best.

2. On this subject, see also the April 1997 report of the Conference of Insurance Supervisory Authorities of the Member States of the European Union.

These regulations obviously apply to the fifteen Member States of the **European Union**³, but the three other members of the European Economic Area (**Iceland**, Liechtenstein and **Norway**) have subscribed to them as well. In addition, this regulatory framework has also been instituted in **Switzerland** following agreements on insurance concluded between it and the European Union—in 1993 for non-life and in 1994 for life insurance. Lastly, the countries taking part in the European Union's accession programme are gradually amending their legislation to bring it in line with the European directives. Amongst OECD Member countries, the **Czech Republic**, **Hungary**, **Poland** and the **Slovak Republic** belong to that programme.

The regulation of insurance supervision is therefore largely harmonised throughout the continent of Europe, even if in certain areas the directives leave considerable latitude for application.

3. Regulation of insurance solvency in Canada and the United States

In some federal countries, the supervision of insurance solvency has the peculiarity of being regulated not only at the federal level, but at the State or provincial level as well.

In **Canada**, for example, the Office of the Superintendent of Financial Institutions (OSFI) supervises and regulates insurance companies that have been constituted or licensed under federal law, along with the activity of Canadian branches of foreign companies. In contrast, review and interpretation of insurance contracts, licensing and supervision of agents, and supervision of the solvency of insurance companies that have been constituted or licensed under provincial law (5% of Canadian insurers) are prerogatives of the provincial authorities. Moreover, a Canadian or foreign insurer registered at federal level must also have been approved in all provinces and territories⁴ in which it wishes to do business.

In the **United States**, each State is responsible for regulating and supervising insurance within its own jurisdiction. Each possesses its own Department of Insurance, which is placed under the responsibility of an appointed or elected Commissioner. These Commissioners meet within the National Association of Insurance Commissioners (NAIC), a body created in 1871 to co-ordinate the supervision of companies doing business in more than one state. The NAIC co-ordinates the States' efforts in the area of solvency in various ways, such as maintaining databases on insurer finances, the financial assets they hold and relevant regulatory measures, drafting model legislation and co-ordinating regulatory policy on important issues. For example, in 1989 the NAIC adopted Financial Regulation Standards, under which 47 States are now accredited, and its risk-based capital adequacy standards have been applicable since 1992 for life insurance and since 1993 for non-life.

Hereinafter, unless otherwise stated, references to the rules on solvency supervision in these two countries will be to federal regulations.

3. Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

4. Canada is made up of ten provinces and three territories.

B. The scope of supervision of insurance solvency

1. The notion of insurance

Companies that write direct insurance are subject to regulation and supervision in all of the OECD Member countries (with the aforementioned restrictions in **New Zealand**). As a rule, it is the regulatory or supervisory authorities who decide which entities fall under the heading of insurance. In some countries, such as the **Netherlands, Poland** and the **United States**, the notion of the insurance industry is defined by law. In others, it is the notion of insurance operations that is defined: such is the case, for example, with the Member States of the **European Union**, where an exhaustive list of these operations is set forth in an annex to the insurance directives. Other countries rely on practice or case law to determine the scope of insurance. It should be noted that the OECD has also established a classification of insurance operations, which is listed in an annex to the Code of Liberalisation of Current Invisible Operations.

2. Entities subject to supervision

Theoretically, all entities engaged in the direct insurance business as defined above are subject to supervision. However, in some OECD countries (including **Australia, Germany, Luxembourg, the Netherlands, Norway, Portugal, Sweden** and **Switzerland**), certain entities are exempted from supervision even though they conduct insurance operations. The entities concerned are small ones having a very narrow scope of activity, such as trade unions that pay out compensation during strikes, small mutual companies that insure livestock, small local farm funds, companies that insure export credits with government guarantees, etc.

Prudential regulations theoretically apply equally to all businesses. Even so, exceptions can be granted to small firms or companies having a particular legal form (generally companies set up as mutual insurers). Such exceptions are justified by the economic, but also the social, role played by these companies. Thus, the **European Union** directives give Member States the option of allowing mutual insurers to reduce their minimum guarantee fund by 25%. However, provisions like this are being increasingly contested because of the distortions of competition they might engender. In **Australia**, for example, the regulations applied to “friendly societies” are being harmonised with the rules applicable to conventional insurers. Similarly, **Japan**’s regulations on the liquidation of insurance companies with share capital are gradually being extended to mutual societies. Lastly, the aforementioned provision of the European directives in favour of the mutual societies is now being called into question by a majority of Member countries.

Moreover, in many cases additional rules apply to companies that belong to an insurance group or financial conglomerate (see below).

3. Supervision of reinsurance

Supervision of the reinsurance business comprises two distinct aspects: supervising the solvency of direct insurers that enter into reinsurance contracts (ceded reinsurance); and supervising the solvency of reinsurers that accept such contracts (accepted reinsurance).

Ceded reinsurance is supervised to ensure that the cedant's risk exposure is properly limited by adequate reinsurance treaties. In this respect, it is part and parcel of the supervision of the direct insurer's solvency, and the relevant regulatory measures will be outlined in the paragraph on the supervision of technical risks.

Accepted reinsurance is supervised differently, depending on whether the accepting company also writes direct insurance or, on the contrary, is a professional reinsurer. In the first case, the reinsurance business is subject to supervision similar to that of other direct insurance activities in a majority of OECD countries, insofar as any losses on that activity would directly diminish the funds that must also guarantee commitments to direct insured. In the second case, however, while some countries impose supervisory rules similar to those for direct insurers (e.g., **Canada**, the **Czech Republic**, **Denmark**, **Sweden**, **Turkey** and the **United Kingdom**), others impose more limited supervision. In **France** and **Germany**, for example, there is no licensing procedure for professional reinsurers, although reinsurers are subject to financial supervision. Lastly, countries such as **Belgium**, the **Netherlands** and the **Slovak Republic** subject such reinsurers to neither licensing procedures nor supervision, on the grounds that professional reinsurers deal only with clients that have the capability of assessing the solvency of the firms with which they do business.

It should be noted that the supervision of a reinsurer's solvency is an issue that also arises in the assessment of the credit risk incurred by direct insurers by virtue of their claims on reinsurers. This topic is covered in the paragraph on reinsurance risk.

C. Systems of insurance solvency supervision: typology

1. Prior supervision and ex post supervision

An insurance company's solvency is supervised at various stages in the firm's business cycle. The licensing procedure, and particularly the imposition of capital adequacy requirements and close review of the firm's business plan, constitutes the first step. A thorough review of licensing conditions is beyond the scope of this study, however. Throughout a firm's lifetime *ex post* solvency supervision⁵ continues, until all of its commitments are met, even during the run-off period or during a liquidation procedure.

While a firm is in business, some countries deem it incumbent upon the supervisory authorities to conduct prior checks of regulatory compliance, and of the quality of products put on the market, and to ensure that these products are adequately priced. This "prior control" approach, is recommended by the OECD in its *Twenty Insurance Guidelines for Economies in Transition*. It is stipulated, however, that "Supervision of tariffs and products should however be adapted to the particular situation of each country and reassessed at a later stage according to the development and progress of the market." Only a handful of OECD Member countries engage in prior control of pricing and products: **Hungary**, **Korea** (only in respect of products considered sensitive) and the **United States**. In **Mexico**, new products may be offered for sale as soon as they are registered, but the supervisory authority may decide to ban products for the 30 days following their registration. Lastly, prior control of pricing is still in effect in **Switzerland** for a number of special risks, but an upcoming reform is expected to put an end to it. The **Slovak Republic** requires insurance company to submit every changes of scheme of operation since licensing procedure.

5. Solvency supervision based on prudential return on a financial year or possibly smaller intervals.

In the other OECD countries, a more liberal approach, initially advocated by a number of countries such as **Australia**, the **Netherlands** and the **United Kingdom**, has gradually taken hold. The principle of exclusively *ex post* control was adopted by all of the Member States of the **European Union** in the third generation of insurance directives⁶, and **Japan** instituted a risk-based solvency supervision system after pricing and product controls were abolished in 1997. The goal is to encourage insurance companies to innovate with new products, while at the same time ensuring, later on (through on-site audits or document checks), that these products do in fact meet regulatory standards, and that their pricing does not put the firm's financial position in jeopardy. In this area, **Belgium** is particularly vigilant, since each category of product is subject to an *ex post* review of profitability, after which the supervisory authority can require a premium increase or call for any other measure likely to restore financial equilibrium to that product category (such as amending certain contract clauses, changing selection policy, etc.). As regards new life assurance policies the same applies to the **Netherlands**: the company has to submit a profit test for. This, however, does not include that such product are subject to prior approval. It should be noted that the principle of *ex post* control does not prevent national supervisory authorities from requiring insurance companies to submit information on new products (e.g., main characteristics, technical interest rates, etc.) before marketing them; it means only that these data are not subject to prior approval.

2. The retrospective approach and the prospective approach

There can be two approaches to *ex post* supervision of insurance company solvency:

- The retrospective approach, which uses historical data to calculate an insurer's solvency requirements;
- The prospective approach, which calculates these requirements by applying theoretical models that incorporate historical data but also factor in assumptions as to future trends in corporate or market data.

The retrospective approach is applied in all of the OECD countries. Among the various types of retrospective models, a distinction is generally made between fixed-ratio models and risk-based models, which are also referred to as "risk-based capital" (RBC). The two types of models differ in the number of factors taken into account and the complexity of the formulae that are used.

3. Fixed-ratio models

In fixed-ratio models, solvency requirements are established as a fixed percentage of the value of a given variable that is assumed to be strongly correlated with a company's degree of risk exposure. This variable generally involves a simple function of one or more items on the balance sheet or profit and loss account. Such models are used in all of the Member States of the **European Union**, but also in **Australia** (for non-life insurance), the **Czech Republic**, **Korea**, **Mexico**, **Poland**, the **Slovak Republic**, **Switzerland** and **Turkey**⁷.

6. Article 29 of the third non-life directive and Article 29 of the third life directive.

7. A fixed-ratio solvency test is also applied in Canada for non-life insurance, but a reform is expected to switch to a "risk-based" model by 2002.

The main advantage of these models is that they are simple to apply. Nevertheless, because of their very simplicity, it is difficult to tailor them to a particular insurer's risk profile, and they are very sensitive to the choice of variable used as the basis for the ratio. Moreover, they can sometimes lead to illogical requirements: for instance, if the ratio is based on technical provisions, a company having a prudent method of provisioning will have to produce a much greater solvency margin than a company that tends to under-provision.

But this drawback can be lessened by using and comparing a number of different ratios. For instance, a premium-based ratio favourable to companies that undercharge is offset by a claims-based ratio in the **European Union**.

4. "Risk-based" models

In the **United States**, the National Association of Insurance Commissioners (NAIC) in 1992 adopted risk-based capital adequacy standards applicable to the life and health insurance sectors. The objective of this "risk-based" model is to address the drawbacks of fixed-ratio methods by incorporating not just one or two factors, but all of the risks confronting an insurance undertaking (or at least what is considered to be all the risks confronting an insurance undertaking)—technical risks (involving inadequate pricing or technical provisioning, liquidation, etc.), but also investment risks (interest rate risk, credit risk, the risk of depreciation, etc.) and other risks (such as commercial risk and management risk). In addition, an effort is made to factor in the correlation between risks: values corresponding to each risk are not simply added together but are plugged into a more complex formula designed to reflect the correlation or independence of the various risks. It is considered, for example, that on average the value of the RBC ratio adopted in 1993 for non-life insurance in the **United States** is about a third lower than it would be if computed by addition alone.

More recently, models of this type were also adopted in **Canada** and **Japan**. For its part, **Norway** has adopted a dual system that combines the fixed-ratio model of European Union directives and a "risk-based" model based on banking regulations (the BIS model).

"Risk-based" models have the drawback of being more difficult to apply. In addition, it must be ensured that any new variables that are introduced do in fact lead to a more accurate estimation of the risks incurred. It is necessary to strike a balance between the number of component factors, the complexity of the formula and ease of application.

5. Prospective models

Fixed-ratio and "risk-based" models both share the drawback of being purely retrospective. But for some firms, and particularly those that are growing fast or have decided to alter their strategies, the incorporation of assumptions about future trends in corporate or market data can significantly alter one's perception of a firm's medium-term solvency. .

So-called "prospective models" are theoretical ones that calculate solvency requirements using historical data but also factor in assumptions about changes in a company's profile (rates of policy renewal rates, overheads, etc.) and the market (future returns on investments, volatility of losses, and so on). Such an approach is used in **Australia** to test capital adequacy in life insurance. This test differs from the "risk-based" solvency test, which is used as well, in that it factors in business plan assumptions, and especially growth projections over a three-year time frame. A test of this type has also been instituted in **Finland**.

The value of prospective models is linked directly to the relevance of their architecture. The results obtained will be valid only if the model adequately reflects actual company and market trends. But business cycles, the effects of legislative changes and the impact of a rare event are difficult to model and to quantify. In addition, to apply such models often entails substantial data processing resources: as a result, the cost of legislative compliance can be high if such models are adopted.

Nonetheless, because they do a better job of taking a company's future development, and especially its growth, into account, they are probably bound to develop. In **France**, for example, a 1999 law requires companies to file a report that includes an analysis of medium- and long-term solvency. Some people see this as a desire to supplement existing requirements with a prospective assessment of solvency.

6. A complementary approach: survival models

If solvency requirements are calculated by "survival" models, known also as "dynamic solvency analysis" models, insurance companies must undergo a test based on assumptions of adverse changes to their assets or liabilities (e.g., asset depreciation or upward adjustment of technical provisions). Such models may be classified as either retrospective or prospective, depending on whether the scenarios are based exclusively on historical data or if they also include assumptions about new business.

"Survival" models were first developed in the **United States**, where some States are currently testing dynamic models based on changes in cash flows, and **Canada**. The solvency test used for life insurers in **Australia** alongside the aforementioned capital adequacy test is another example of a "survival" test based on a projection of unfavourable changes in liabilities (this test being supplemented by additional requirements incorporating asset-side risks). Lastly, the resilience test applied in the **United Kingdom** may be placed in this family of tests, even though it does not determine a solvency requirement, but rather the amount of the "resilience reserve".

The main difficulty in implementing these models lies in the definition of the scenarios tested: all risk factors need to be taken into account, and risk levels need to be chosen carefully to strike the proper balance between prudence and efficiency.

III. Incorporating the various risks into solvency supervision

The solvency tests introduced in connection with fixed-ratio or risk-based models seek to quantify an insurance company's exposure, risk by risk, and then to plug the values obtained into an overall formula, the results of which—known as the minimum or regulatory margin—will be compared with the selected amount of capital effectively available in the firm (allowable equity). It should be noted that this regulatory margin represents only a lower limit, below which the supervisory authorities intervene automatically. Supervisory authorities may, however, take action even if an insurer still has a sufficient margin, and as a rule they are empowered to require an insurer to maintain a margin greater than this minimum amount if the circumstances so warrant.

A. *Equity requirements*

1. *Minimum amount of equity (guarantee fund)*

As soon as an insurance company files a licensing application, an initial solvency requirement is imposed on it in the form of a minimum level of equity, which is sometimes referred to as a minimum guarantee fund. Subsequently, equity that is allowable for constituting the solvency margin must always exceed both the minimum regulatory margin, calculated as a function of the risks to which the insurer is exposed, and this guarantee fund.

The amount of the minimum guarantee fund is not risk-based, but is set rather in an absolute manner. In point of fact, the fund plays a real role only in the case of new companies or those that do only a low volume of business, since for all other firms the risk-based margin would be greater. But for new firms, the only parameters available to estimate risks are assumptions regarding the business plan, and for that reason the results obtained are not necessarily very reliable. They are not reliable for small firms either, because the quantities in question are not large enough for the application of statistical rules to provide a sufficiently precise estimation.

The minimum amount of the guarantee fund may be modulated depending on the line of business: the amount stipulated for life insurance is generally greater than the requirement for non-life, except in **Canada, Japan, Korea, Norway** and **Turkey**, where the amounts are identical. **European Union** directives, as well as the **Czech Republic, Hungary, Poland**, the **Slovak Republic** and **Switzerland**, also require different amounts, in respect of non-life insurance, between liability and casualty business. Lastly, **Switzerland** is the only country to require different amounts for different classes of life insurance. In **Korea**, the level of the guarantee fund does not depend on the nature, but rather the number, of classes written: the amount required of a single-line insurer is one- or two-thirds less than the standard amount.

The amounts required differ sharply from one country to another. For non-life insurance, the range extends from EUR 200 000 for legal protection insurance in the **European Union** to 30 billion won (more than EUR 25 million) for a Korean multi-line insurer; for life insurance, it ranges from EUR 800 000 in the **European Union** to 30 billion won in **Korea**, A\$10 million in **Australia** and C\$10 million in **Canada**. In the **United States**, the amounts are set by each State. The relatively low guarantee funds imposed by **European** directives are due to the fact that amounts were set in absolute value in the first-generation directives; a substantial increase, which would at least account for subsequent inflation, is on the agenda, and there are plans to review the amounts regularly thereafter. **Norway** and **Mexico** resolve this problem by indexing the amount of the guarantee fund to inflation. Lastly, it should be borne in mind that the fund is only a floor, and that in most cases the supervisory authorities may require a company to carry a greater amount of equity: this is described as being commonplace in **Canada**, and even as constituting the rule in **Sweden** (where the minimum required capital is set by the authorities on a case by case basis, depending on the line of business, projected volume and other criteria).

2. *Components of allowable equity (free capital)*

The definitions adopted for allowable equity to cover regulatory margin requirements (free capital) do not differ substantially from one country to another. Theoretically, it consists of the company's assets, free of any foreseeable commitments, less any intangible items, or, if the assets represent a commitment, whether the corresponding commitment is subordinated to any other commitment. It therefore consists primarily of: share capital for joint stock companies or initial capital for mutual societies,

a portion of the unpaid-in fraction of this capital, reserves free of all commitments, retained earnings, subordinated debt (in some countries only) and reserves related to potential adjustment of invested assets (in countries in which investments are carried at cost).

B. Technical risks

The main risks taken into account when determining minimum regulatory solvency margins are technical risks (insurance risks) and investment risks. While other risks can in fact also have highly adverse repercussions on an insurance company's solvency, they are harder to quantify. This does not mean that such risks are not subject to regulatory supervision, but only that the relevant provisions are generally qualitative measures imposed in addition to solvency margin requirements.

1. Risks of miscalculating premiums and technical provisions

These two items account for the bulk of technical risks. According to an A.M. Best study on the primary reasons for the failure of American insurance companies between 1969 and 1998, they constitute by far the leading causes of insolvency in the United States (being at fault in 22% of the 683 cases studied).

Premium risk, or the risk of under-pricing, is defined as the risk that the premiums charged will be too low to cover the corresponding commitments. It has two components: pure premium assessment risk, which is fairly similar to the risk of miscalculating technical provisions; and the risk of underestimating operating expenses. It should be noted that if the under-pricing is voluntary—e.g., if premiums are deliberately set too low in order to attract customers—the risk is not one of assessment but rather “commercial” or “management” risk (see below).

The risk of miscalculating technical provisions, or “provisioning risk”, corresponds to the risk that technical provisions will prove inadequate to meet all of the commitments arising from insurance contracts. It takes fairly different forms for life and non-life insurance, and, in respect of non-life insurance, between classes involving short-tail risks (such as casualty insurance) and those involving long-tail risks (such as various classes of liability). Liquidation risk, which is relatively negligible in the case of short-tail risks, in fact becomes relatively substantial as the time frame of the risks insured gets longer.

Lastly, a distinction is sometimes made between valuation risk that is due to an accidental miscalculation or misinterpretation of available data and a risk that stems from a subsequent change in risk factors; in this case, the risk is one of adverse change. This latter risk is by definition inevitable, save for recourse to reinsurance, but the former (i.e., an error in calculation) can be limited by regulations governing the process for setting premiums and technical provisions and/or by requiring that the tasks involved be performed by a qualified person—in most cases an actuary. Such provisions are found in all of the OECD countries in respect of life insurance; in contrast, only half of the OECD countries require non-life companies to use actuaries⁸, and provisions governing the valuation process are frequently far more lax, except for compulsory classes of insurance, to which in many cases strict provisions apply.

a) In non-life insurance

Two accounting items can be seen as natural indicators of a company's level of exposure to valuation risks: the amount of premiums and the amount of provisions for future claims. The amount of

8. See below, Other forms of supervision - Actuaries.

premiums (premiums written, earned premiums or the higher of the two) is in fact a very natural basis for the risk of under-pricing and risk related to premium collection costs, but it also provides a thoroughly acceptable approximation for the risk of inadequate technical provisions in short-tail classes. In contrast, for classes involving long-tail risks, a ratio based on provisions for future claims is preferable for estimating the risk of under-provisioning and the risk involving claims management expenses.

To date, **European Union** directives have called for the use of a premium-based ratio to be supplemented by that of a ratio based not on the amount of provisions for future claims, but on the amount of claims (average, over the three or seven previous years depending on the class of risk, of the amount of claims paid and the variation of the amount of reserves for outstanding claims). The advantage of taking into account the amount of claims paid is that it does not set a lower solvency requirement for a company that has calculated its technical provisions too narrowly than would be imposed on a company having a more prudent provisioning policy. On the other hand, this index does not factor in the particularly substantial liquidation risk that characterises transactions involving a very lengthy time frame. It is for this reason that a large majority of Member countries would like to add, alongside a premium index and a claims index, a third parameter—a provisions index—that would be based on provisions for future claims.

If the term “claims-based ratio” is taken to encompass ratios based on provisions for claims and ratios based on past claims (of the European sort), it could be said that all of the OECD countries use both a premium-based ratio and a claims-based ratio. Except for the **United States**, where they are used cumulatively (according to a formula that is more complex than addition alone), only the higher of the two ratios is used in the final calculation of the solvency requirement (alternative method). **Canada**, however, is considering a reform of its non-life solvency system that would shift to a risk-based system in which technical risk would be factored in via a ratio involving unearned premiums and one involving unpaid claims, used cumulatively.

The percentages used to construct ratios are generally not applied uniformly, yet methods of refinement differ from country to country. The first method consists in setting different rates for different classes of insurance: in **Mexico**, for example, the percentage applied to total premiums varies from 13.87% for health and accident insurance lines to 113.62% for credit insurance, which is deemed far riskier (the percentage applied to claims varies in similar proportions). This method of refinement is used in the **United States** as well. **Canada** is also considering varying the percentage applied to claims, depending on the class of insurance. In contrast, the method is not applied in Europe, and it did not receive majority support in the reform of **European Union** directives. The reasoning given was that such a distinction would require an indisputable classification of risks by class of insurance (to prevent risks from being apportioned in an opportunistic manner) and would make the solvency margin more complicated to calculate. Moreover, the introduction of a provisions index, which factors in the high liquidation risks inherent in long-tail risks, implicitly entails a modulation (since the provisions index would effectively determine the solvency requirement only if the provision for future claims exceeded a given percentage of premiums).

Another method of refinement seeks to incorporate reduction of risk through improved risk diversification. In the RBC system implemented in the **United States**, a reduction of the provisions risk is granted in respect of portfolios that are adequately diversified (the degree of diversification being calculated from the respective proportion of total provisions of each class: for a portfolio equitably apportioned among the 15 classes, the factor is cut to 72% of the initial amount). The difference between the percentages applied below and above the EUR 10 and 7 million thresholds applicable respectively to the premium index and the claims index in the **European Union** can also be explained by the incorporation of risk compensation (which is easier to achieve in a large firm). But these thresholds also reflect a desire to take economies of scale into account. Be that as it may, this differentiation does not appear to have been sufficiently convincing, since the proposed reform would do away with it.

The percentages can also be altered to reflect the particular characteristics of a firm in relation to the market average, the lower liquidation risk for accepted reinsurance contracts, the absence of subsequent claims risk for contracts covering only those risks that are reported during the period of cover, and so on.

b) In life insurance

In respect of life insurance, health insurance that is managed in a similar fashion, and certain accident classes, the setting of premiums and technical provisions is heavily regulated in all of the OECD countries. In particular, regulations call for the use of mortality or morbidity tables and a prudent technical interest rate. The **Slovak Republic** does not regulate technical interest rate; the supervisory authority recommends using of prudent technical interest rate and modification of mortality/morbidity tables in the cases that authority finds them insufficient. Depending on the country, tables can be imposed by the supervisory authorities or established by the insurance companies on the basis of the observed loss frequency of their own portfolios, and then approved. Ceilings on technical interest rates are set either absolutely (e.g., 8% for contracts denominated in national currency in **Mexico**) or in relative terms (60% of the rate on government bonds in the currency in which a contract is denominated in the **European Union**⁹). Moreover, apart from **France** and **Switzerland**, all OECD countries require that life insurance companies retain the services of an actuary¹⁰.

In view of these measures, the primary technical risk in life insurance is that of an unexpected and adverse change in mortality or morbidity¹¹. Depending on the type of life insurance in question, two balance sheet items provide a natural basis for estimating the risk. A ratio based on the amount of mathematical provisions is in fact relevant for estimating annuity risks (risk of underestimating annuitants' life expectancy). In contrast, for contracts that provide death benefits, a ratio based on capital at risk and the difference between the amount of the benefit and the mathematical provisions constituted, is more appropriate.

All of the OECD countries use a ratio based on capital at risk except **Mexico**, where solvency requirements for life insurance other than pensions are based on the aggregate amount insured (mathematical provisions and capital at risk). The special case of annuity contracts is treated differently only in **Canada**, where a ratio of 1% of mathematical provisions is applied alternatively to contracts involving a survival risk, and in **Mexico**, where a ratio of 4% of mathematical provisions is applied to all pension contracts. **European Union** directives also call for a ratio based on mathematical provisions; this is not, however, in order to allow for the risk of a change in mortality but for the risk involving operating expenses¹²; this is why this ratio, logically, is used in conjunction with the one involving capital at risk. This choice of ratio assumes that the bulk of operating expenses consist of the costs of tracking policies and managing investments; if, on the contrary, it is premium collection and new contract preparation

9. The EU Third Life Directive (92/96/EC), new article 17 of the First Life Directive, paragraph 1, Section B (a), also allows for another method. When the assets are not valued at their purchase price, a Member state may stipulate that one or more maximum rates may be calculated taking into account the yield on the corresponding assets currently held, minus a prudential margin. The Netherlands (inter alia) applies this system.

10. See Practical organisation of supervision, Other forms of supervision.

11. Interest rate risk is classified as an investment risk.

12. The solvency rules in the first life directive called for a margin of 4% of mathematical provisions in addition to a ratio of 0.3% of capital at risk. The exception clause for contracts that are linked to investment funds allows one quarter of this (i.e., 1% of provisions) to be allocated to covering the risk involving operating expenses (with the remaining 3% covering investment risk).

expenses that dominate, then a ratio based on gross premiums would be more appropriate. Lastly, it should be noted that special ratios are applied in respect of entities that do not administer life insurance using the conventional capitalisation method (e.g., a ratio based on the assets of the association for tontines, a ratio based on net premiums for associations of Lloyd's subscribers).

As for non-life insurance, the percentages used to define ratios can be modulated in a variety of ways. In the **United States**, loss simulations for portfolios of differing size have shown that firms with the largest portfolios have a relatively smaller risk of change. The percentage applied is therefore modulated, from 1.5‰ for the first layer of capital at risk to 0.6‰ in excess of \$25 billion. **Canada** also makes a refinement based on portfolio size: the required margin is multiplied by a factor ranging from 1.25 for the smallest portfolios to 0.6 for the largest.

Another method of refinement seeks to take account of the fact that shorter-term insurance contracts involve lesser risks of change. In the **European Union**, solvency requirements—3‰ of capital at risk—are divided by three for temporary contracts of less than three years' duration and are halved for contracts spanning three to five years. A similar distinction is made in **Canada**, but there the relevant time frame is the residual guarantee period—the requirement being divided by four for contracts of less than one year and halved for those with between one and five years left to go.

Lastly, solvency requirements can also depend on contract characteristics: **Canada**, for example, applies different percentages for contracts not involving survival risks, depending on whether they constitute group or individual insurance, do or do not include bonuses, and are or are not adjustable.

2. Growth risk

An insurance company's growth entails special risks if it is excessive or poorly co-ordinated, if risk selection or pricing is not done with all the necessary care, and if financial resources are insufficient to cover the risk. Growth *per se* does not constitute a separate risk, but rather a delicate period in a company's lifetime, during which the probability that other risks—especially the risks of under-pricing and operating cost overruns—will come to bear increases significantly.

The aforementioned A.M. Best study contended that excessive—or in any event ill-controlled—growth was the cause of 13% of the insurance company failures in the **United States** between 1969 and 1998. For its part, the Conference of Insurance Supervisory Authorities of the Member States of the **European Union** deems in its report on the *Solvency of Insurance Undertakings* that “On the basis of past experience, the risk of excessive and uncoordinated growth ... was generally regarded as significant.”

This risk is only factored in explicitly by the RBC system set up in the **United States**. For non-life insurance, if premiums grow by more than 10% an excessive-growth increase of 45% is applied to the RBC coefficient representing provisioning risk (a ratio based on technical provisions) and to the coefficient for subscription risk (a premium-based ratio). Moreover, average growth in excess of 10% over the past five years is deemed to aggravate risk and is incorporated into the ratio corresponding to extraordinary risks related to the balance sheet. For life insurance, a coefficient of 2% of life insurance premiums and 0.5% of health insurance premiums is used to cover general business risk¹³. This factor is not limited to growth risk, but also encompasses all risks not included in other categories, such as risks arising from

13. This category of risk is made up of two sub-categories: C4-a Business Risk, Guaranty Fund Assessment Risk (general business risk of life insurers) and C4-b Business Risk, Health Administration Expense Risk (due in particular to the administration of third-party programs and excessive growth).

competition, excessively rapid development, poor management, an adverse economic climate or operating expense overruns.

In all of the other countries, growth risk is taken into account only through regulatory measures other than solvency tests. One of them is the requirement that all newly licensed undertakings writing a given line of business prove that they have the financial resources to cover the set-up costs of their administrative services and production networks (by establishing an organisational fund) or to meet the high risk of adverse change involved in the distribution of new products. This measure is recommended in the IAIS standard on licensing. The amount of such a fund is not spelt out in the regulations because the supervisory authorities must be able to determine it on the basis of a company's particular circumstances.

Adequate recourse to reinsurance, and proportional reinsurance in particular, is also a good way for an insurance company to control its growth¹⁴. It is in this sense that the control measures of a reinsurance programme can be considered to somehow contain growth risk. But the best way of limiting this risk is still to conduct on-site inspections of fast-growing insurance companies at shorter-than-average intervals.

3. Reinsurance

Reinsurance cessions are incorporated into solvency supervision in two distinct ways. First, a reinsurance programme can limit risks, and especially the risks of large or accumulated losses. A first set of provisions therefore seeks to ensure that a firm has adequate reinsurance cover. However, unlike the situation under co-insurance contracts, a reinsured insurer still bears sole legal liability vis-à-vis the insured. An insurer must therefore bear the risk of its reinsurer's potential default. A second set of measures was therefore instituted to take this risk—which is also known as credit risk (arising from reinsurance)—into account.

These two risks constitute a significant component of the risk incurred by an insurance company: the risk of catastrophic losses was the cause of 6%, and default by reinsurers of 3%, of insurance company failures in the **United States** between 1969 and 1998.

a) The risks of large and accumulated losses

The risk of large losses corresponds to the danger that a non-life insurance undertaking will incur excessively large losses, in terms of the number and/or value of claims. The main response to this risk is supervision of the reinsurance programme. Such supervision is carried out by all of the OECD countries, and it starts with the licensing procedure. In some countries, it is supplemented by more specific measures limiting the amount of risk an insurer can retain. Regulators impose retention ceilings by risk in **Australia** (5% of net assets¹⁵), **Canada** (2% of free capital, in non-life), **Poland** (25% of net provisions and capital) and the **United States** (10% of capital plus surplus). In **Australia**, insurance companies are also required to possess net assets equal to or exceeding the value of their maximum retention per event. The objective of this measure is to limit the risk of accumulated, or "catastrophic", losses involving a succession of claims triggered by a single event (such as an earthquake or a storm). Lastly, in **Norway** an insurance

14. It is in fact very commonplace, under proportional reinsurance treaties, for the reinsurer to assist the insurer with setting premiums or formulating underwriting policy, *inter alia* by sharing its knowledge of the market or by assisting it financially by discounting its reinsurance commissions.

15. The supervisory authority has stated a preference, however, that retention not exceed 3% of net assets based in Australia.

company's by-laws must stipulate a limit on risk retention: the clause most frequently adopted sets maximum retention per risk at 10% of the company's capital and retention per event at 20%.

Another very common measure is to require constitution of a particular type of technical provision—a provision for equalisation. Except for **Australia, Mexico, Turkey** and the **United States**, all of the OECD countries report the existence of such a provision. In contrast, the number and nature of the classes concerned vary from country to country. While the **United Kingdom** extends the principle of the equalisation provision to all property insurance, maritime and aviation risks and non-proportional reinsurance and **Spain** extends it to all long-tail risks, the scope of application may be limited to a very small number of classes, usually including natural disasters.

Lastly, catastrophic risk may be added directly to the list of risks that are factored into solvency requirements: such is the case in **Japan**, where catastrophic risk is one of the five factors composing the overall RBC ratio.

b) Credit risk arising from reinsurance

Regulators can take a number of steps to limit the risk of default by a reinsurer. The most common one is to allow only partial deduction of the reinsurers' share from the amount of technical provisions used to compute solvency requirements, or to make the deduction subject to certain conditions. **European Union** directives stipulate that if a Member State allows technical provisions to be covered by claims on reinsurers, it shall set the allowable percentage. Countries may therefore choose to allow such claims in computing the solvency margin only if assets are deposited to guarantee them. Moreover, ceded reinsurance is incorporated into the solvency margin calculation only up to a certain threshold. For the moment, that threshold is set uniformly (50% for non-life insurance and capital at risk; 15% for mathematical provisions); however, future directives may empower the supervisory authorities, in certain cases, to set lower deductions, i.e. at a rate lower than 50%, if there is any doubt as to the quality of the reinsurance provisions, the reinsurer's solvency or the stability of the reinsurance ties¹⁶. A number of OECD countries already apply criteria that hinge upon the quality of reinsurers.

In the **United States**, for example, claims on reinsurers may be partially deducted from gross provisions; the deduction, which is generally limited to the amount of the assets on deposit, is greatest if the reinsurer has been licensed by the State in which the insurer does business. In **Canada**, claims on a reinsurer are fully deductible if the reinsurer is registered in Canada or is subject to supervision by an OECD Member country; otherwise, the deduction is limited to the amount of the guarantee deposit. **Mexico** incorporates reinsurance into the regulatory margin calculation in a highly unique way, insofar as the deduction of claims on reinsurers licensed in Mexico (any others are excluded) is limited to the average cession rate for the class in question and the resultant figure is corrected if the reinsurer has not been given a satisfactory rating by an international rating agency. Of all the OECD countries, only **Australia** computes the regulatory margin solely on the basis of premiums net of reinsurance; the reason for this is the supervisory authority's prior control of the reinsurance programme, with the quality of reinsurers being one of the parameters taken into consideration. In **Poland**, the margin requirement is computed using rules laid down in European directives, but for the time being claims on reinsurers are fully eligible to cover regulated commitments (although a reform is in the works).

16. To avoid any discrimination, such a decision should be made subject to objectively verifiable criteria laid down in the directives.

Alongside partial adjustment of provisions for reinsurance, the credit risk arising from reinsurance may be integrated directly into the list of technical risks used to compute the margin. In the **United States**, for example, credit risk is taken into consideration, for non-life insurance, via a 10% coefficient applied to aggregate reinsurance claims. For life insurance, reinsurance risk is one of the components of investment risk¹⁷. In **Japan**, “investment risk” also comprises a component called “credit risk arising from reinsurance”, but it comprises both the risk that a reinsurer will default on a claim payment and the risk that a cedant will default on a premium payment if the company being examined also has a reinsurance business. The resultant ratio is then factored into the total RBC formula.

Lastly, other, more qualitative, measures can be implemented. For example, a reinforcement of indirect supervision of reinsurance undertakings by the competent oversight authorities can reduce the potential risks of reinsurance operations. The OECD project of establishing a system to exchange information on the financial soundness of reinsurers among the various countries is an important step in this direction. Mandatory recourse to a variety of different reinsurers is another option, but in that case steps should be taken to ensure that this does not prompt an insurer to diversify by doing business with less reliable reinsurers.

C. Investment risks

After technical risks, investment risks are the second major risk category taken into account in solvency supervision. According to the European Conference of Insurance Supervisory Services, they are also the second most important cause of insurance companies' financial difficulties, after the management risk and ahead of the technical provision risk. In the **United States**, investments have also been identified as a major risk factor: 6% of bankruptcies are attributable to overvaluation of assets.

1. Investment regulation: points for consideration

a) Cross-sector harmonisation of investment regulation

Whereas technical risks are unequally divided between the life and non-life sectors, the investment and other risks are equally present in both, although with widely different impacts depending on the duration of the risks insured. This last element, along with the fact that some life insurance companies guarantee a minimum rate of liability to their policyholders, explains why investment regulations sometimes differ as between life and non-life business.

Another argument sometimes put forward to justify a reform of investment regulation is that it is necessary to align the constraints applying to insurance companies, particularly in the life sector, with those applying to pension funds, so as to avoid a distortion of competition. However, given that the two areas are very different, the cogency of this argument may be doubted¹⁸.

17. Factor C1 – Asset Risk – Other, Plus Reinsurance.

18. For more information on this point, see the papers on recent investment developments by the Insurance Committee and the Working Party on Private Pensions.

b) Quantitative restrictions and "prudent person rules"

Two different regulatory approaches are used in applying the investment risk to solvency supervision. The first, known as the quantitative approach, is to set quantitative limits on the investments of an insurance company. The limits may be set by category of assets or by issuer (rules of diversification), by currency (currency matching rule), or by location of assets (e.g. in the country where business is transacted). The main advantage of this approach is its ease of application; it is easy for the supervisory authorities to ascertain whether a company is complying with these rules and to justify their intervention if it is not. But the quantitative approach also has negative aspects. It may lead to an inefficient allocation of capital, especially if managers tend to hold in a given category a proportion of assets well below the prescribed ceilings so as not to exceed these when markets perform well. Also, quantitative limits are not flexible and cannot be rapidly adjusted in response to economic developments or structural changes in securities markets. These objections are partially removed if the thresholds are high enough to enable different asset management options.

With the prudent person approach, on the other hand, the requirement is simply that investments must be such that they may be regarded as being managed prudently, in the way a good father would manage the family assets. This type of regulation rests principally on scrutiny of managerial behaviour, for example through monitoring of the corporate governance and internal control procedures set in place by the company. The prudent person approach has the advantage of allowing the insurance company's management much more scope. In this respect it is more consistent with the rationale of solvency supervision, which is to protect policyholders and beneficiaries with minimum interference in the management of the company. On the other hand, it is much more difficult for the supervisory authorities to make sure that the requirement of financial security is being met and to determine at what point intervention is necessary.

No country's system of investment regulation rests solely on one or other of these two approaches. In the **United States**, for example, regulation essentially uses the prudent person approach, but a quantitative restriction of 3% to 5% per issuer¹⁹ is also applied, while other quantitative limits are imposed by some individual States. Similarly, the EU Third life and non-life Directives set quantitative limits by asset category and issuer but also impose a general requirement as to maximum diversification and profitability. Rather than classify countries according to whether they follow one or other of the approaches, it is more appropriate to place them on a progressive scale between the two extremes of purely quantitative regulation and sole application of prudent person rules.

2. The main investment risks: depreciation risk and liquidity risk

The depreciation risk is the general risk of an investment's losing value. The credit risk is a particular case since it involves a loss of value due to the weakening financial position or default of a debtor. If, on the other hand, investment depreciation results from financial market developments, it is appropriate to speak of market risk. A company also runs the risk of being unable to encash its investments in time and sufficiently to meet commitments falling due: this is the liquidity risk.

19. This limit per issuer does not apply to financial instruments issued by the U.S. Government.

a) The principles of diversification, dispersion and localisation

The basic approach to containing the depreciation risk and the liquidity risk is to apply the principles of diversification—spreading the investment portfolio over several major asset categories or different issuers—and dispersion—share of a specific asset in a category of assets.

The countries applying quantitative regulation for the different classes of investment (most of the OECD area) generally authorise the same type of investment, but with ceilings that are more constraining in some countries than in others. Assets representing the technical provisions may be held in:

- bonds: ceilings between 2% (**Turkey** for corporate bonds) or 5% (**Poland**) and 100%;
- shares: ceilings between 10% (**Slovak Republic**) and 100%;
- mortgage-backed securities (except in **Turkey**);
- real estate: from 10% in the **Netherlands** to 100%;
- loans: all OECD countries except **Poland** and the **Slovak Republic**;
- liquidity: all OECD countries except **Mexico**; and
- advances on life insurance contracts (except **Japan** and the **United Kingdom**).

The majority of OECD countries (**Canada, Czech Republic, Japan, Korea, Mexico, Norway, Switzerland, United States** and all the countries of the **European Union**) also limit the percentage of assets that an insurance company may hold in financial instruments (shares, bonds, loans) issued by the same institution. There is a strong correlation between depreciation/credit risks of instruments from the same issuer and the investment risk is therefore heightened; in this case it is usual to speak of the concentration risk. The ceiling set ranges from 3% to 10% across the OECD area, but does not normally apply to government debt issued by the country concerned or by another OECD country. **Hungary, Poland** and the **Slovak Republic** set a limit above which the company is required to notify the supervisory authority accordingly. If the authority considers that the concentration risk incurred is too high, it may then require the company to diversify its assets by applying to another issuer. In the **Slovak Republic**, there is also a restriction on bank deposits: bank deposits in one bank cannot be higher than 40% of the capital stock of this bank, and cannot be higher than 25% of the technical provision of the insurance company. A notification threshold of 5% applies in **Australia** for life insurance, but the supervisory authority is not empowered to demand that the company bring in another issuer. On the other hand, if the concentration risk exposure is high, the actuary must set up, alongside the provision for non-admissible assets, a provision specifically covering the risk (the level of this provision depends not only on the degree of concentration but also on the issuer's credit risk). Extension of this regulation to non-life insurance is envisaged.

To make these quantitative rules a little more flexible, ceiling overruns may be authorised within certain limits. In the **European Union**, for example, the statutory ratio of 5% for securities, loans, etc. from the same issuer may be increased to 10%, provided that the total value of the securities, loans, etc. from issuers whose issues are admitted beyond the ratio of 5% does not exceed 40% of the gross technical provisions. Temporary waivers may also be obtained with the agreement of the supervisory authority concerned.

In addition to the principles of diversification and dispersion, most countries also apply a principle of asset localisation. Thus in **Germany, Japan, Korea, Poland, Slovak Republic, Czech Republic, Spain** and **Switzerland** there is an upper limit on admissible technical provision investments that may be located in other OECD countries; it ranges from 5% in Poland to 30% in Switzerland and Korea. Much tighter restrictions are applied in the majority of OECD countries to investments in non-member countries. **Australia, Canada, Hungary, Mexico** and **Turkey** do not allow funds representing the technical provisions to be invested abroad.

NB: In most OECD countries investment regulation does not apply to the equity of insurance companies. Thus all Member States of the **European Union**, along with **Japan, Mexico, Slovak Republic** and **Switzerland**, differentiate between the treatment of assets representing technical provisions—which are intended to compensate policyholders—and treatment of the assets covering other liabilities—which serve to meet the claims of other creditors. The majority of OECD countries, with the exception of **Iceland, Japan, Norway** and **Turkey**, do not regulate free assets. The Member States of the **European Union**, moreover, have expressly undertaken not to do so.

b) Solvency requirements as related to investments

Investment regulation is not the only means used to deal with depreciation and liquidity risks. Many countries also apply solvency margin requirements designed specifically to cover these risks, or more generally the investment risk. This is the case in **Japan**²⁰, **Korea, Mexico** and the **United States** for both life and non-life insurance and in all OECD countries for life insurance. As a rule, the countries where investment regulations are very tight have commensurately lower solvency margin requirements in respect of investment risk. In non-life business, for example, nearly 25% of the statutory minimum margin²¹ is assigned to the investment risk in the **United States**, where the prudent person approach largely applies.

Because the risks attach to invested assets, it seems natural to use their amount as the basis for determining the capital necessary to cover the investment risk. **Canada, Japan, Korea, Mexico, Norway** and the **United States** have adopted ratios calculated on the basis of company assets. These ratios are cumulatively built into the calculation of the statutory minimum solvency margin. The different categories of assets are weighted according to their nature, degree of liquidity and class of credit risk. In most cases the weights range from 0% for the safest assets, like bonds issued by the government of an OECD country or AAA-rated bonds, to 30% or 50% for high-risk assets, like shares not listed on a regulated market and therefore illiquid. A weight of 100% is sometimes applied to the lowest-rated debt securities. In the **United States** the risk weights are increased when an insurer's assets are heavily concentrated on certain types of investment or on a small number of debt issuers. These asset-based ratios lie in the same range as that recommended by the Basle Committee for banking institutions. **Norway** makes explicit reference to the Committee's guidelines (BIS rules) for this segment of its solvency supervision system²².

The **European Union**, on the other hand, has chosen a ratio based not on assets but on technical provisions (for life insurance only). The report of the European Conference of Insurance Supervisory Services explains this choice in the following manner. Given that the sole aim of solvency requirements is

20. In Japan, the Asset Management Risk is the sum of 5 separate components: depreciation risk, credit risk, risk attaching to related undertakings, off-balance-sheet risk and credit risk linked with reinsurance transactions.

21. See study of Switzerland by Ré, 1997 figures.

22. The other segment is based on the European directives.

to guarantee that insurance commitments will be met, the calculation base should be only the amount representing the technical provisions. If total assets are used as the base, the "rich" companies are penalised. Additionally, any solvency regulation based, even partly, on assets will doubtless influence the investment strategy of insurance companies and encourage them to invest only in low-risk securities, chiefly government debt issues, in order to provide evidence of a smaller solvency margin, which is not desirable. For their part, weighting coefficients cannot be immutable, collateral for real estate assets having varied from one period to another—which justifies periodic adjustments (here there is criticism similar to that of investment dispersion thresholds). Against this reasoning it may be argued that a provision-based ratio is very sensitive to the risk of error in technical provision valuation (a higher risk than in asset valuation). Furthermore, companies with a very cautious policy as regards provisioning are required to have a larger solvency margin.

The directives of the **European Union** set different solvency requirements according to whether the insurer bears an investment risk or not. For contracts in which the company bears no investment risk the solvency requirement is 1% of the mathematical reserves as against 4% for the other contracts, on condition that the contract has a term of more than 5 years and that the amount covering the management costs specified in the contract is set for a period of more than 5 years. For contracts in which the insurance company bears only part of the investment risk, e.g. if it guarantees only a basic lump sum payment or a minimum indemnity in the event of death, the required solvency margin is 4% of the mathematical reserves corresponding to the risk borne. In **Australia**, allowance for the investment risk (which takes the form of a provision for asset risk, see below) is also scaled according to the risk share borne by the insurer, but the latter must prove that the policyholder has been fully informed of the risk he bears. Furthermore, for all contracts in units of account, the insurer is required to have a solvency margin equal to 0.25% of the mathematical reserves intended to cover the residual investment risks (policy surrender and asset realisation risks²³).

Finally, it should be noted that the present **European Union** legislation does not include investment risk in the solvency requirements for non-life insurance. This risk is also absent from the non-life solvency tests in **Australia, Czech Republic, Hungary, Poland, Slovak Republic, Switzerland and Turkey**. On the other hand, it is always included in calculation of the statutory solvency margin for life insurance, and the countries that take it into account for both sectors generally set higher requirements for life business. This is justified by the fact that, unlike long-term life insurance contracts, the majority of non-life contracts are short-term and therefore less exposed to investment risks. Furthermore, the non-life insurer makes no commitment in terms of remuneration (guaranteed minimum rate, profit share). However, investment risks are not entirely absent from non-life insurance, especially for the long-term contracts, and the European Union is contemplating a reform on this point.

c) Provisions for asset risk

Allowance for investment risks may also be made in the valuation of provisions or invested assets. To remove the asset valuation risk, all OECD countries require insurance companies to apply a prudent and clearly defined method of valuation to all their investments. This method may be the historical cost valuation like in the **Czech Republic, France, Germany** (non-life), **Hungary, Italy** (non-life), **Japan, Korea, Poland**, and the **Slovak Republic**. It might also be the market valuation like in the **Netherlands**, or a hybrid solution between the two former methods. In the EU zone, according to the EU

23. The surrender risk materialises when, for example, the charges specified in the contract are not sufficient to meet the costs of selling assets. The realisation risk appears when policy surrender necessitates the simultaneous sale of a large quantity of assets under unsatisfactory conditions of asset realisation.

Insurance Accounting Directive, member countries have to choose either of the two. If market value is applied, the historical cost should be disclosed in the explanatory notes and vice versa.

Allowance for credit and depreciation risks by way of provisions likewise depends on the valuation method used. For example, countries that have chosen the historical cost method require companies to create a provision for depreciation in the event that the market value of their investments falls below the book value (the provision may be calculated asset by asset or for a whole category of assets, as the case may be). Latent asset appreciation, on the other hand, is recorded as an off-balance-sheet item and partly or wholly integrated into the solvency calculation. In principle, such adjustments are not necessary with the market value method, since the asset price is supposed to incorporate the credit risk and depreciation risk specific to each investment. In fact, this is more debatable in the case of illiquid assets like real estate. Consequently, special requirements are often attached to that class of assets: for example, the regulations may require valuation by independent assessors.

Finally, regulations may require the creation of a specific provision to cover the credit risk or depreciation risk. In **Australia**, for example, the solvency standard defined by the Life Insurance Actuarial Standards Board includes the creation of a resilience reserve to allow for adverse movements in investment markets to the extent that they will not be offset by improvements in the liabilities position (the adverse movements considered are a fall of 1.25% in the return on shares and real estate, 0.6 per cent in indexed bonds and 1.75% in all interest-bearing products). A similar resilience test is applied in the **United Kingdom** for life insurance. Three scenarios are tested. All three assume a fall in shares and real estate investments (of 10 % or 25 %), but one of them assumes an increase in the yield from fixed-interest securities (current yield % + 3 %) while the other two assume a decrease (respectively 0.8 and 0.9 * current yield).

Additionally, it is not uncommon for the supervisory authorities to require the creation of a reserve when they have serious doubts concerning the market value of an asset.

3. Other investment-related risks

In addition to the depreciation and liquidity risks common to all types of investment, there are other risks specific to one or another type. Depending on the country concerned, these risks are allowed for in the regulations and solvency requirements described above or are the subject of special measures.

a) Matching risk

The assets of an insurance company should at all times be sufficient to cover its insurance liabilities. But the value and yield of assets are continuously influenced by financial market fluctuations and cover of technical liabilities may therefore be endangered. This risk, known as the matching risk or asset-liability matching risk, essentially takes two forms: the currency matching risk, resulting from exchange rate movements, and the interest rate risk.

The currency matching risk arises when an insurance company invests its assets in a currency other than the one in which its liabilities are denominated. The most current regulatory measures to deal with this risk are the currency matching requirements imposed by the majority of OECD countries. These requirements may be total or only partial. The **European Union** directives, for example, state that insurance undertakings are authorised not to cover with matching assets an amount of up to 20% of their liabilities in a given currency. Some countries, such as **Canada, Korea, Japan, the Slovak Republic** and the **United States**, actually impose no matching requirement. However, since the liabilities of insurance companies are mostly denominated in the national currency, the upper limits on investment abroad may in

practice imply a degree of matching. Quantitative restrictions are not the only regulatory options for dealing with the risk. In **Australia**, for example, an unfavourable scenario including a fall of 10% in unmatched assets is used for determining the amount of the provision for asset risks.

An interest rate change necessitates a new valuation of yields on the assets side and a new valuation of liabilities if the reserves are discounted at a technical rate reflecting the new market conditions. If the estimated inflows from investments do not coincide exactly with the estimated outflows associated with policy liabilities, the two adjustments do not correspond and the company is exposed to a risk of mismatch between assets and liabilities. This risk is seldom given specific treatment in the calculation of non-life solvency, since most of the policies are short-term and the technical provisions are generally not discounted. Only **Japan** takes it into account in both the life and non-life sectors with the RBC factor Expected Interest Rate Risk. In most countries the interest rate risk is explicitly taken into account in the life sector, notably in the case of the resilience reserve introduced in **Australia** and the **United Kingdom**. In the **United States** the interest rate risk is one of the four elements of the RBC ratio in life insurance. Products giving the policyholder certain guarantees in the event of surrender are regarded as particularly risky; thus the coefficient applied to the mathematical reserves to allow for the interest rate risk is scaled according to the policy guarantees offered (the maximum coefficient is applied in the case of policies that guarantee a cash surrender value). Furthermore, the weights are increased by a flat 50% when the insurance company is unable to prove that its assets and liabilities are correctly matched. A similar ratio is applied in **Canada**. The coefficient is scaled according to the nature of benefits, the period of guarantee to run and the conditions of surrender.

Holdings of derivative instruments may also be set against the asset-liability matching risk. But derivatives are themselves risky and as such the subject of specific measures.

b) Risk attaching to derivatives

As with all financial instruments, the use of derivatives exposes the insurer to investment risks. But with derivatives the risks are greater. The valuation risk is increased by the absence of generally applicable regulations on this type of off-balance-sheet operations, the risk of error by the comparative newness and wide diversity of derivatives, and the liquidity risk by the fact that derivatives are traded in thin markets or over the counter and the leverage induces a large loss potential. Many OECD countries have therefore decided initially to prohibit or limit the use of derivative instruments by insurers. **France, Hungary, Luxembourg, Norway, Poland, the Slovak Republic and Turkey** have chosen to ban the use of derivatives entirely. **Belgium, Denmark, Germany, Iceland, Korea, Mexico, the Netherlands, Norway** and the **United Kingdom** authorise it for hedging purposes only.

Nevertheless, regulators recognise that derivatives are useful risk management tools for insurance companies. The present tendency is therefore to authorise their use within strict quantitative and especially qualitative limits, defined by legislation, by the supervisory authority and by the internal control procedures of companies. In the countries that allow the use of derivatives, prior authorisation normally has to be obtained from the supervisory authority or from company management for each type of derivative it is intended to use. The authorisation must specify the persons or services empowered to buy or sell the derivative and its intended use (hedge or speculative positions). Moreover, the company management must establish a system of estimation, quantitative limitation and monitoring of the corresponding risks. This type of approach is advocated by the International Association of Insurance Supervisors for countries that decide to authorise the use of derivatives.

Finally, the credit risk attaching to a derivative instrument may be directly included in the solvency margin requirement. In **Canada**, for example, the amount of capital to be held against this risk is

determined according to the value of the instrument, the admissible guarantees, the nature of the instrument and its maturity, and the risk of default by the counterparty. In **Japan**, the derivatives risk and the other risks related to off-balance-sheet transactions form one of the five components of the investment risk.

c) Equity holdings and the contagion risk

An insurance company that has a stake in other companies may be obliged to provide additional equity funding. The economic or financial difficulties of the companies in which it has an interest may then be transmitted to it: this is known as the contagion risk.

Various regulatory measures aim to limit this risk. First, an insurance company's stake in another company may be limited by law: the **Czech Republic, Denmark, Finland, Hungary, Iceland, Japan, Norway, Poland, Switzerland** and the **United States** impose restrictions on insurance company shareholding in non-financial enterprises. Second, without being prohibited or quantitatively limited (by restrictions other than those applying to all investments), equity investment may be specifically monitored by the supervisory authorities.

A number of countries authorise equity investment in other insurance companies, but in some cases these holdings are not admissible to represent the technical provisions. Finally, specific restrictions apply in the case of insurance groups and financial conglomerates (see below).

D. *Other risks*

1. *Management risk*

This section deals with all the risks to which an insurance company is exposed through incompetent or improper management. Management risk is sometimes the primary cause of the technical or investment risks, so its control is essential to a company's solvency. Moreover, management risk is the factor of insecurity most frequently cited by the Solvency Working Group of the European Conference of Insurance Supervisory Services.

To limit this risk, it is vital that insurance companies have officers and managers of high quality. The great majority of OECD countries require insurance companies, at the time of the licensing procedure, to provide information on the professional reputation and competence of their senior management personnel (fit and proper requirements). This information is submitted for approval by the licensing authorities, except in **Australia, Finland, France, Norway, Switzerland** and **Turkey**, where it simply has to be produced²⁴. The "fit and proper" requirements correspond to clearly defined objective criteria (university degree, number of years spent in the insurance business, absence of conviction for breach of consumer protection rules in the financial sector) and more subjective criteria, such as professional standing or evidence of reliability and maturity in an individual's conduct and decision-making. To be able to have as accurate a picture as possible, the supervisory authorities of the different financial sectors and in the different countries arrange to exchange information on the competence of insurance managers, within the limits defined by the rules governing privacy. Ongoing evaluation is, of course, the practice in this area, notably at times of on-site inspection and management changes.

24. In these six countries the required testimonials of competence and integrity are not submitted as such for approval, but they form part of the background information on the strength of which the authorities concerned might refuse to grant a licence.

Japan is the only country in which the management risk as such is taken into account in solvency margin requirements, since it is included in the calculation of the aggregate RBC ratio by way of a specific factor termed the "business administration risk". In the **United States**, the risks associated with bad management are one of the elements built into the ratio corresponding to the business risk. In practice there are two obstacles to integration of the management risk in solvency margin requirements. First, the magnitude of the risk is particularly difficult to determine, which means that the level of guarantee set, say in the form of a percentage of premiums, is even more unreliable than for the other ratios. Second, a level of guarantee sufficient to cover the shortcomings of a few incompetently or dishonestly managed companies would heavily penalise the other companies that form the vast majority. This is why, including in **Japan** and the **United States**, the emphasis is more on "fit and proper" criteria, with the solvency margin requirement serving to cover the residual management risk.

2. Risk of failure of a privileged partner

a) Insurance brokers

Brokers, who obtain contracts for an insurer, may collect premiums, pay out claims and in some cases perform the management function by delegation; they are then continuous holders of funds on behalf of their partner. Failure of a brokerage business therefore entails a considerable loss for the insurer, since the premiums paid by policyholders commit the insurer once the broker has collected them. At least that is what the courts of law recognise in many countries.

To prevent insurance companies from being exposed to this risk, some countries, like **Germany**, **Japan** and **Turkey**, entirely prohibit brokers from collecting premiums for the insurer. In **Iceland** they may do so only with the insurer's written agreement. In **Belgium**, **Hungary**, **Italy** and **Sweden** prohibition applies only to certain types of policy.

The general rule, however, is to authorise insurers to delegate to brokers a portion of contract management (notably collection of premiums and settlement of small claims) provided that the brokers present guarantees. The most common requirements are:

- accreditation (**Australia, Belgium, Czech Republic, Finland, Hungary, Iceland, Italy, Korea, Luxembourg, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Turkey, United Kingdom, United States**);
- fitness and properness (**Belgium, Czech Republic, Finland, France, Hungary, Iceland, Italy, Japan, Korea, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Turkey, United Kingdom, United States**);
- professional liability insurance (**Australia, Belgium, Czech Republic, Finland, France, Hungary, Iceland, Italy, Korea, Luxembourg, Mexico, Norway, Poland, Portugal, Spain, Sweden, Turkey, United Kingdom**);
- deposit of a financial guarantee (**Finland, France, Hungary, Iceland, Japan, Korea, Mexico, Norway, Spain**);
- ongoing supervision (**Belgium, Czech Republic, Hungary, Iceland, Italy, Korea, Mexico, Poland, Spain, Turkey**).

Most countries' regulations disallow claims on intermediaries as assets representing the technical provisions.

b) Shareholders

An insurance company set up as a joint stock corporation must be able to call on its shareholders to cover losses or to finance a new activity and will be in serious difficulty if they are unable to respond. The failure of an insurance company is sometimes caused by the failure of its chief shareholder.

To meet this risk, insurance regulations provide for shareholder supervision, although this is stricter in some countries than in others. All OECD countries have as a licensing requirement that information be supplied concerning majority shareholders or investors with a "qualifying holding" (generally 10% or more of the capital), but this information is submitted for approval in only just over half of these countries (**Belgium, Czech Republic, Finland, Germany, Iceland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, Poland, Portugal, Slovak Republic, Sweden, United Kingdom, United States**). Some countries require an insurance company to have as chief or controlling shareholder a corporation designated to negotiate with the supervisory authority if the company gets into difficulty. The criteria to be met by the corporation include, in addition to financial soundness, suitability as to the nature and extent of its activity, its top management and the corporate or group structure.

Shareholder supervision as part of the licensing procedure is necessarily accompanied by supervision of ulterior changes in share capital. Regulations require that the supervisory authority be informed beforehand of any significant change in a company's capital. A significant change is defined as an increase or decrease in capital so that the proportion of the capital held would reach a given threshold—generally 10%, 20%, 33% or 50%—or acquisition of 10% or more of the company's shares.

3. Risk attaching to contingency liabilities

Suretyships given to third parties and guaranteeing performance of financial obligations undertaken by the latter may entail heavy losses. Many countries prohibit insurance companies from giving such guarantees, at least to companies engaging in activities other than insurance or not part of the insurance group concerned. Use of suretyships between insurance companies belonging to the same group is also often regulated so as to limit the contagion risk; for example, approval may have to be obtained from the supervisory authority before a suretyship can be contracted.

The contingency liabilities risk is taken into account in solvency margin requirements in **Canada, Japan** and the **United States**. In the **United States**, guarantees to subsidiaries and conditional liabilities are two of the four risk factors used in calculating the off-balance-sheet risk ratio. In **Canada**, contingency liabilities are first converted to credit equivalents (for example, a rate of 100% is applied to financial guarantees or loan substitutes), then a weight ranging from 0% to 8% is applied to the amount obtained in order to determine the capital needed as cover. As in the case of investments, the weighting depends on the nature of the liability and the counterparty. In **Japan**, off-balance-sheet risks are one of the five components of the investment risk.

E. Measures specific to insurance groups and financial conglomerates

The increasing national and international convergence of the banking, insurance, brokerage and pension fund sectors—in the form of interlocking holdings or buyouts—presents a real challenge to supervisory authorities. The first problem is to formulate a solvency requirement applicable to groups and conglomerates. Here the main consideration is double or multiple use of equity capital. The regulatory framework must also encompass the additional risks to which an insurance company is exposed within a group or conglomerate, such as the opacity risk, the risk attaching to intra-group operations and the risk of conflict of inter-sector interests.

1. The increased contagion risk of groups and conglomerates

Any insurance company with a holding, especially a majority holding, in another company is exposed to the contagion risk, since it may have to make good the financial losses of the other company, thus reducing the capital available to cover its own liabilities. In the case of a group or conglomerate, however, the contagion risk is compounded by another factor, namely the risk associated with the company's public image. The setbacks of a financial entity reflect upon the companies bearing the same name, acronym or logo, or using the same counters. The insurance sector is admittedly less exposed to this risk than the banking sector—since non-life policies generally cannot be surrendered and the penalties for surrender of life policies serve as a deterrent—but it is exposed nonetheless (the impact on new policy writing is undeniable).

This is one of the reasons why many OECD countries regulate cross-ownership in the financial sector. Creation of a banking subsidiary by an insurance company is prohibited in **Finland, Iceland and Japan**. It is subject to restrictions in **Canada, Germany, Korea, the Netherlands, Norway, Sweden, Switzerland** and the **United States**. Equity investment by an insurance company in a bank is restricted in many OECD countries—**Australia, Canada, Germany, Greece, Hungary, Iceland, Ireland, Japan, Korea, Netherlands, Norway, Sweden and Switzerland**—and even prohibited in two—**Mexico and United States**. Equity investment by a bank in an insurance company is restricted in **Australia, Canada, Iceland, Japan, the Netherlands, Norway, Sweden and the United States**, and prohibited in Mexico. In many countries, insurance companies are not allowed to distribute banking products but banks are more often free to distribute insurance products.

However, these tight restrictions are tending increasingly to be eased. In the **Netherlands**, for example, the principle of segregation of the different financial sectors has been relaxed since 1990. The regulations on cross-ownership have not been entirely rescinded, but the policy in this regard has shifted from "no, unless..." to "yes, provided...". Furthermore, the different authorities concerned have agreed to jointly define the criteria for obtaining a certificate of non-objection.

Restrictions on shareholding are not the only ways in which regulation responds to the contagion risk inherent in cross-ownership. In **Japan** and the **United States**, this risk is also taken into account by a specific risk factor in the RBC model. In the American case, the weight of this factor is increased by the fact that the risk associated with related companies is systematically excluded from the adjustments designed to take account of covariance between the different risks.

2. Solvency of groups and conglomerates

With new insurance groups and financial conglomerates emerging constantly and the older-established conglomerates spreading their activities more evenly over different sectors, it is becoming increasingly necessary to establish a solvency norm specifically for them. The central consideration as regards group or conglomerate solvency is dual use of equity capital. This applies especially to financial conglomerates, since insurance companies, banks, pension funds and brokerage businesses are not subject to the same regulations and, being exposed to different risks, do not have to satisfy the same solvency requirements.

Most OECD countries now have solvency requirements specific to insurance groups and conglomerates. These regulations do not overrule the principle of solo supervision of the companies in a group but provide for an additional mechanism: solo-plus supervision. Only the **Czech Republic, Hungary, Korea, Mexico, the Slovak Republic and Turkey** do not appear to have any specific regulations in this area.

The solo-plus principle was adopted by the **European Union** in a 1998 directive on supplementary supervision of insurance undertakings in an insurance group (previously, several Member States had already established their own rules). This directive, which had to be written into domestic law by 5 June 2000, enters into effect for fiscal year 2001 at the latest. The Member State may choose one of three methods of calculating the adjusted solvency margin. The first of these is a deduction method whereby the aggregate capital requirement of the subsidiary is deducted from the capital of the parent company. This method has the disadvantage of not taking into account any capital "surplus" in the subsidiary or related undertaking. That drawback is overcome by the second technique, the deduction and aggregation method. The third method is to calculate adjusted solvency on the basis of the group's consolidated accounts. An insurance group must now submit, in addition to the mandatory statements of all its insurance subsidiaries, financial statements testifying to its adjusted solvency. Furthermore, a new draft directive provides for the application of similar principles in supervision of financial conglomerate solvency.

In the **United States**, financial conglomerates pose a particular problem in that insurers are supervised at State level and banks at federal level; hence there is clearly a conflict of jurisdictions. An approach is now under study that would leave individual States absolute jurisdiction in the insurance sector, whilst financial conglomerates would be supervised by the Federal Reserve. The aim is to define a single format for measuring and aggregating all the risks to which financial conglomerates are exposed. In theory, this approach is more satisfactory than calculating adjusted solvency on the basis of individual requirements after deduction of double counting, since it takes account of the increase or decrease in the conglomerate's total risk exposure due to interactions between the different constituent entities. In practice, however, it is very difficult to apply. A more realistic alternative would be that each conglomerate develops its own format and has it approved by the supervisory authorities (such a procedure is already being used in a number of OECD countries for credit institutions).

At the international level, the Basle Committee on Banking Supervision, the International Organization of Securities Commissions and the International Association of Insurance Supervisors have together set up a body to formulate proposals for supervisory co-ordination in the different financial sectors: the Joint Forum. The forum has submitted to its parent organisations a number of proposals for the

supervision of financial conglomerates, including different methods of defining the level of capital adequacy they should maintain²⁵.

3. Risks specific to insurance groups and financial conglomerates

Within a conglomerate, an insurance undertaking is exposed to additional risks that vary according to the conglomerate's size and the mix and location of its activities.

a) Risk of opacity

The information needed for supervision of an insurance undertaking may be difficult for supervisors to obtain when it is located in other companies, in another country or in an entity not subject to individual prudential supervision.

Accordingly, many OECD countries require insurance groups or financial conglomerates to comply with specific transparency measures. This is the case in **Australia** and the **United States** (for insurance groups only), **Mexico** (financial conglomerates only), **Norway** and all the countries of the **European Union**. In **Australia**, for example, the regulator requires that the structure of the group be sufficiently transparent to show which parts of the group conduct which activities, what is the risk profile of the group and its constituent entities, how risk management is organised and apportioned, and what are the organisational, financial and other links between the members of the group²⁶. Under the **European Union** directives, the competent authorities must require any insurance undertaking subject to supplementary supervision to have internal control procedures adequate to produce the data and information necessary for the exercise of such supervision.

In cases where the necessary information is located in companies not subject to individual prudential supervision, regulations may guarantee supervisors access to these companies. For example, in the **European Union** supervisors of insurance undertakings may conduct on-site information checks in the parent companies, subsidiaries or related companies. However, requests for these information checks must always be sent beforehand to the undertaking supervised.

In **Australia**, as a measure to prevent the risks associated with non-supervised entities of a financial conglomerate from making assessment of the supervised undertaking's risk exposure too difficult, the regulator may prohibit that undertaking from participating in a conglomerate or require that the group structure be reviewed. One of the main criteria in this decision is the ratio of non-supervised activities to the conglomerate's total activity. In principle it should not be more than 30%. Other criteria include the agency rating of non-regulated entities, the nature of their activities, their financial soundness and the extent of intra-group financial relations.

Finally, in cases where the group or conglomerate includes entities subject to prudential supervision in another country or in another financial sector, the great majority of OECD countries have set up procedures for information exchange between the different authorities concerned. At the international level, the Joint Forum has established principles on information exchange between supervisory

25. *Capital Adequacy Principles Paper and Supplement to the Capital Adequacy Principles Paper*, Joint Forum on Financial Conglomerates, 1999.

26. *Prudential Supervision of Conglomerates, Policy Discussion Paper*, Nov. 1999, Australian Prudential Regulation Authority.

authorities²⁷. Also, G7 finance ministers agreed on "10 Key Principles on information exchange" at their meeting in May 1998.

b) Risk associated with intra-group operations

Financial transactions between companies with ownership linkage, notably asset or risk transfer, may reduce the capital available for cover of insurance liabilities to the benefit of the group's other activities.

In response to this risk, the Member States of the **European Union** require insurance companies to notify the competent authorities of major intra-group operations at least once a year. If such information shows that an insurance company's solvency is endangered or likely to be, the authority orders that company to take remedial measures. Intra-group borrowing is subject to specific supervision in **Australia**, **Mexico** (financial conglomerates), **Norway** and the **United States** (insurance groups).

c) Risk of conflicting sector interests

One of the risks associated with a financial conglomerate is that there may be conflicts of interest between the different constituent entities. For example, the board of a conglomerate may have to decide between a capital increase for a banking subsidiary underwritten by an insurance company and other investments more consistent with the interests of policyholders.

Consequently, many countries require financial conglomerates to build "firewalls" between their different sectors. One fairly current measure of this sort is not to allow one person to hold management responsibilities in both a lending institution and an insurance company of a conglomerate. In **Finland**, for example, the CEO of an insurance company and his deputy may not have any activity in a bank, and the majority of the members and alternates of the insurance company's board must be different from those of the bank's board. But even with firewalls, there may still be a conflict of intra-group interests at the highest level of management. Only the "fit and proper" requirements applied to CEOs and board members can limit the residual risk.

IV. Organisation of insurance solvency supervision

A. *Regulatory and supervisory authorities*

1. *Practical organisation*

a) Administrative status of regulators and supervisors and the means placed at their disposal

With the exception of **Luxembourg** and **Portugal**, insurance regulation is the responsibility of a ministry. In most countries this is the ministry for economy and finance or the treasury, but other ministries may also have responsibility: trade and industry (**Iceland**, **Ireland**, **Italy**, **United Kingdom**, **United States**), social affairs and health (**Finland**), development (**Greece**). In some countries, regulatory

27. *Principles for Supervisory Information Sharing Paper*, documents on the supervision of financial conglomerates, Joint Forum on Financial Conglomerates, February 1999.

functions are shared by the insurance supervision authority, notably for the enforcement of laws and regulations. This is the case in **Belgium, Finland, Iceland, Italy, Japan, Korea, the Netherlands, the Slovak Republic, Switzerland, Turkey** and the **United Kingdom**.

The supervision authority is an independent administrative body in most OECD countries. It is a ministry department in only four countries: **Austria, the Czech Republic, Greece** and **Turkey**.

Where it is not part of a ministry, the supervision authority is generally financed in full by contributions from the insurance companies. Supervision may also be partly financed by the State—in **Germany** (as to 10%) and **Mexico**—or by another contributor—in **Korea** (5.4%). The **Slovak Republic** Financial Market Authority is funded from state budget.

Depending on the size of the country and the number of insurance companies operating in it, the personnel strength of the regulatory and supervisory authorities varies widely: from 10 in the **Slovak Republic**, 15 or so in **Iceland** and **Luxembourg** to nearly 400 in **Australia, Germany** and **Mexico**. In some countries (e.g. **France**), this staff is seconded from the regulating ministry to the supervision authority.

b) Principal assignments

Licensing

The first stage in insurance solvency supervision is scrutiny of the file submitted by the company in order to obtain a licence or have it extended. In most countries the decision to license a company rests with the ministry responsible for regulation. In some countries, though, licensing responsibility is shared with the supervision authority—in **Australia, Germany, Korea, Luxembourg, Norway** and **Switzerland**—or wholly assigned to the latter—in **Denmark, Hungary, Italy, the Netherlands, the Slovak Republic** and **Sweden**. In cases of competence sharing, the ministry is usually responsible for licensing foreign insurers and the supervision authority for extending the licences of domestic insurers. The other tasks are shared differently according to country.

Off-site supervision

In all OECD countries the overriding assignment of the insurance supervision authorities is to protect the interests of policyholders, underwriters and beneficiaries. Promotion of a competitive, equitable and stable market for the different insurance companies is often an additional aim. Two complementary forms of supervision are applied to insurance companies: off-site and on-site.

Off-site supervision consists in the analysis of the financial reports each insurance company has to supply. These are:

- the annual accounts, comprising the balance sheet, profit and loss accounts and additional notes (all OECD countries);
- annual statements of the solvency margin requirement, margin actually constituted, investments, and constitution and liquidation of technical reserves (all OECD countries);
- semi-annual accounts or statements (**Czech Republic**)

- quarterly accounts or statements (all OECD countries except **Czech Republic, Denmark, Iceland, Ireland, Netherlands, Portugal and Switzerland**); these statements, which are more condensed, usually include a statement of investments and reserves);
- monthly statements (**Japan, Korea and Poland**).

By and large, the supervision authorities also have the right to require insurance companies, particularly if newly established or in financial difficulty, to submit more frequent reports or any other documentation necessary for supervisory or statistical purposes.

On-site supervision

On-site inspections are an essential adjunct to off-site supervision. They enable supervisors not only to check whether the reports submitted by a company accurately reflect its real economic and financial situation, but also to exercise a qualitative supervision of the company's operation, its standard of management and its internal control procedures. The **United Kingdom** is the only OECD country in which the insurance supervision authority does not practise on-site inspection. However, this absence is offset by close co-operation between supervisors and company auditors and actuaries (for life insurance) and by regular meetings between supervisors and company managers²⁸.

In the other OECD countries, supervisors perform on-site inspections. The frequency of these inspections may be prescribed by law—in **Canada**, for example, companies have to be inspected at least once a year or, if circumstances permit, less frequently but at least every two years—or left to the judgement of the supervision authority. In the latter case, however, the authority tries to have all companies inspected on a fairly regular basis, for example by limiting the maximum interval between inspections. The companies to be inspected and the key points to be examined are chosen in the light of supervisors' experience of those companies, information gathered from their submitted reports or the general concerns of the supervisory authorities in connection with market developments.

Finally, the supervisory authorities may remain in touch with insurance companies by arranging regular meetings between supervisors and company executives (the **Netherlands, Norway** and the **United Kingdom**) or by presence at annual board meetings (systematically in **Finland**).

Other assignments

While off-site supervision and on-site inspection are by far the most important activities of supervision authorities, the latter may also have other assignments, of which the most current are:

- collection and publication of statistical data;
- mediation between insurers and policyholders (**Australia, Belgium, Germany, Korea, Luxembourg, Mexico, Norway, Portugal, Spain, Switzerland, United States**);
- anti-money laundering efforts (all OECD countries except **Hungary, Korea, Mexico, Poland, Switzerland** and **Turkey**).

28. "These visits are not in the nature of detailed inspections. They are opportunities for supervisors to meet company executives in order to gain some idea of their quality and discuss their plans for the future. The visits enable supervisors to keep abreast of market developments. Also, by establishing personal contacts, they encourage managers to notify the supervisory authority of their projects or their concerns very early on".

2. Consolidation of financial supervision authority²⁹

The increasing convergence of the financial sector's different activities undoubtedly constitutes a major challenge for the practical organisation of supervision. The underlying question is what regulatory structure would permit the most suitable and efficient supervision of the financial sector generally and its conglomerates in particular.

a) The different degrees of integration of financial supervision authority

The diversity of the financial supervision systems set up in the OECD area shows that as yet there is no consensus on the best approach to adopt. The range of systems is very wide. At one extreme is the establishment of a sole supervision authority covering all sectors (banking, insurance, securities and pensions). This approach has already been adopted by **Denmark, Hungary, Iceland, Japan, Korea, Norway, the United Kingdom and Sweden**, and the creation of a sole supervision agency was recently announced in **Ireland**. A reform along these lines is also envisaged in **Germany**. Other countries have adopted a "semi-integrated" approach whereby only some of the sectors are subject to joint supervision by one authority: banking and securities in **Finland, Luxembourg, Mexico and Switzerland**; banking, insurance and pension funds in **Australia and Canada**; insurance and pension funds in **Belgium, the Czech Republic, Finland, the Netherlands, Portugal, Spain and Turkey**, capital market and insurance in the **Slovak Republic**. The remaining countries have preferred a separate supervision authority for each sector. Supervision co-ordination is then achieved by way of agreements between the different authorities, in some cases with the creation of a body comprising representatives of each sector.

Of the countries that have not adopted the fully integrated approach, **Austria, Greece, Ireland, Spain** and the **United States** have assigned the supervision of financial conglomerates to an umbrella authority, the one that supervises a parent company or a company performing the group's leading activity. The umbrella authority supervises the conglomerate's operations as a whole in co-ordination with the other authorities that supervise each of the constituent activities. In **Switzerland**, too, an umbrella authority is appointed, but on a case-by-case basis (i.e. not always the authority supervising the group's leading activity). **Belgium, Czech Republic, Finland, France, Germany, Italy, Luxembourg, Netherlands³⁰, Poland, Portugal and Turkey** do not designate an umbrella authority³¹.

b) Operational structure of supervisory authorities: a tentative typology

Even among the countries with consolidated financial supervision the pattern of practical organisation varies widely. Consolidation of the individual supervisory authorities into a single authority has taken very different forms depending on the size of the country concerned, the regulatory structures

29. See *Consolidated Supervision in Theory and Practice*, note by the Secretariat of the OECD Committee on Financial Markets, March 2001.

30. In the Netherlands, there is a protocol agreement between the insurance and banking supervisory authorities on joint supervision of financial conglomerates. According to this agreement predominantly insurance or bank groups are being supervised by the insurance or banking supervisory authority. Mixed groups are being supervised jointly. Moreover, since 1 August 1999 a Council of Financial Supervisory Authorities has been established, which may set common rules for the insurance, banking and securities sector.

31. Source: Institute of National Bankers *Global Survey 2000*, plus national supervisory agencies.

already in place, the specifics of the national market and also the theoretical approach favoured³². There are four main types of consolidated organisation:

- The institutional model or sectoral model. Here the supervisory service is structured according to the different types of financial institution and not according to the activity performed (e.g. pension products are supervised by a different department of the service according to whether they are provided by a pension fund, a bank or a life insurance company);
- The functional model. The supervisory service is structured according to the activity performed (deposits, life insurance, pensions, securities management) and not according to the institutional form of the performer. In the case of a very segmented market, with strong regulatory barriers between the different sectors, this approach is equivalent to the institutional approach, but the progressive removal of these barriers in many countries is accentuating the difference between the two models;
- The operational model. Supervision is organised according to the different supervisory activities performed (off-site supervision, on-site supervision, research);
- The dual model. Supervision is based on the operational model, but within each supervisory department there is an institutional structure.

The structures actually adopted by consolidated supervision authorities vary considerably across countries. But in most cases they tend towards the institutional model (as in **Korea** and **Norway**) or the dual model (as in **Denmark**, **Sweden** and the **United States**). Also, most supervisory authorities do not have a special department to deal with financial conglomerates or diversified groups (though there are exceptions, as in **Australia**).

In practice it has proved extremely difficult to adopt just one type of approach. Where institutional specialisation is developed there is often an operational pattern not unlike the one found in countries using a non-integrated institutional approach. More broadly, it can be said that the organisation of supervision in countries not using an integrated approach reveals a typology similar to the one applying to single authorities. That is to say:

- a non-integrated institutional model for countries with a supervisory authority for each financial sector (the most current model);
- a non-integrated operational model where there is a different authority for each type of supervision assignment, e.g. **Australia**, where the Reserve Bank of Australia (RBA) is responsible for systemic stability, the Australian Prudential Regulatory Authority (APRA) for prudential supervision and the Australian Securities and Investments Commission (ASIC) for market trading and consumer protection;
- a non-integrated dual model where there is a different supervisory authority for each financial sector, but where each authority is organised according to the operational model, the different assignments (off-site supervision, on-site supervision, research) being carried out by different services.

32. See in particular *Financial Regulation: Why, How and Where Now?*, Goodhart et al (1998) and *"Twin Peaks": A regulatory structure for the new century*, Taylor (1995).

B. Relations with other forms of supervision

1. Auditors

The essential function of an auditor is to verify that a company's books are kept in accordance with the regulations applying in the country concerned and to certify the correctness of the annual accounts. The profession is recognised by law and regulated in all OECD countries. In **Japan** and **Switzerland**, however, the appointment of an auditor is not mandatory.

In most OECD countries, insurance company auditors also act as intermediaries between the company and the supervisory authorities. They are required to report to the supervisory authorities in all OECD countries except **France, Hungary, Japan, Sweden** and **Switzerland**. And in all but the first four countries mentioned above, formal rules have been laid down for co-operation between the supervisory services and auditors. These relations are especially important to authorities performing no or few on-site inspections, as in the case of the **United Kingdom**.

In all OECD countries, insurance companies appoint their auditors. But to ensure that auditors are equipped to perform their role as watchdogs for the supervisory authorities, regulations impose requirements as to academic qualifications (all OECD countries except **Korea** and **Switzerland**), professional experience (all OECD countries except **Hungary, Iceland, Korea, Portugal, Sweden** and **Switzerland**) or "fitness and properness" (**Korea, Japan, Norway, Turkey, United States** and all Member States of the **European Union**). Furthermore, the supervisory authority generally has the right to refuse the appointment proposed by the company and, in the most serious cases, to appoint an auditor of its own choosing. Finally, in all OECD countries except **Switzerland** auditors have to be independent of insurance companies.

2. Actuaries

Actuaries, too, have a special relationship with the supervisory authorities. Although the profession is not recognised by law in **Belgium, Germany, Hungary, Luxembourg, the Netherlands, Portugal** and **Sweden**, the great majority of OECD countries require insurance companies to use actuaries. Only **France** and **Switzerland** have no such requirement. The requirement applies only to life insurance companies in **Australia, Denmark, Italy, Luxembourg, the Netherlands, Sweden** and **Turkey**.

Except in the case of **Australia** (and, of course, **France** and **Switzerland**), regulators impose requirements as to:

- qualifications, in the form of a diploma or membership of an institute of actuaries;
- professional experience (**Belgium, Czech Republic, Denmark, Finland, Germany, Hungary, Italy, Korea, Mexico, Norway, Poland, Slovak Republic, Sweden, Turkey, United Kingdom, United States**);
- fitness and properness (**Belgium, Czech Republic, Denmark, Germany, Hungary, Italy, Japan, Korea, Luxembourg, Norway, Poland, Slovak Republic, Turkey, United States**);
- independence from the insurer (**Australia, Iceland, Italy, Mexico, Norway, Turkey, United States**).

In countries where actuaries have to be appointed, they have statutory duties to perform. In the great majority of countries, the essential task of an actuary is to calculate the technical provisions and/or value policy liabilities. Other duties they may have to perform are:

- monitoring solvency (**Canada, Czech Republic, Denmark, Finland, Germany, Italy, Korea, Luxembourg, Mexico, Netherlands, Norway, Slovak Republic, Sweden, Turkey, United Kingdom, United States**);
- certifying the accuracy of the information submitted to the supervisory authority (**Belgium, Czech Republic, Denmark, Germany, Hungary, Iceland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, Norway, Portugal, Slovak Republic, Spain, Turkey, United Kingdom, United States**);
- certifying the correctness of premium rates and technical provisions (**Czech Republic, Hungary, Iceland, Korea, Poland, Slovak Republic**);
- advising the management (**Belgium, Czech Republic, Slovak Republic**);
- monitoring the distribution of surplus to policyholders (**Japan, Czech Republic, Slovak Republic**).

V. Financial difficulties and insolvencies

A. *Definition of insolvency: intervention thresholds*

An insurance company is declared insolvent when it is not longer able to meet the solvency requirements with which it has to comply. However, the financial situation of an insurance company may be seriously threatened before there is any sign of a shortfall in terms of technical provisions or solvency margin, i.e. if the company's pricing policy is wrong, if its reinsurance programme is inadequate or if its investments are very risky. In several countries it has been seen that certain insurance companies still show a solvency margin above the critical threshold shortly before they have to go into liquidation.

Japan, Korea and the **United States** have accordingly provided for prompt corrective action by way of systems comprising several thresholds of supervisory intervention (three for **Japan** and **Korea**, four for the **United States**), each threshold corresponding to a percentage of the minimum solvency margin requirement.

On a more general basis, a number of countries have introduced early warning systems. These comprise a very wide range of schemes—prescribed by legislation or regulation, by directives from the supervisory authorities or even by internal rulings of the supervisory body—which identify companies likely to encounter difficulties, according to criteria that vary from country to country. The main advantage of an officially prescribed linkage between certain benchmarks and supervisory intervention is that it reduces the risk of discrimination between the different insurers and the risk that decisions to intervene will be disputed. On the other hand, this type of arrangement may be regarded in some countries as too limiting in that the supervisory authority cannot intervene outside it, even in cases where the authority has serious doubts about a company's solvency for reasons not covered by the early warning system. This is why the Solvency Working Group of the European Conference of Insurance Supervisory Services suggests, in connection with the revision of insurance directives, that no further attempts should be made to define the situations warranting intervention and the means to be made available for that purpose, in order to leave the supervisory authorities the necessary latitude to take measures of adjustment.

B. The rehabilitation procedure

1. The due process of law

Whatever measure is taken against it, an insurance company has the right to appeal. In most cases the rehabilitation procedure begins with a simple warning to the company, asking it to take the necessary steps as soon as possible. At a later juncture, the company is invited to put its case to the supervisory authority before any penalty is imposed. In the most serious cases, the supervisory authority may sometimes issue an immediate injunction or impose an immediate penalty. Finally, rulings by the supervisory authority may be appealed initially to the finance ministry (**Czech Republic, Hungary, Korea, Norway and Spain**) and subsequently, in all OECD countries, to the competent judicial authority, which in many cases is an administrative court.

2. Measures taken in the event of difficulties

It is not possible to compile an exhaustive list of all the rehabilitation measures and penalties at the disposal of the supervisory authorities. The range varies from country to country, and in most of them the list of statutory measures ends with a provision empowering the authorities to take any measure other than those explicitly mentioned, provided it is of a kind that will safeguard the interests of policyholders. The measures described below are only the most current ones.

a) The rehabilitation plan

As soon as the financial situation of an insurance company appears unsound or if the company is unable to meet its solvency requirements, the supervisory authority may require it to submit a rehabilitation plan for their approval. This applies in all OECD countries. Other than in **Poland, Portugal, Spain** and the **United Kingdom**, the rehabilitation plan may be drawn up by the supervisory services themselves if the company refuses to submit one or if the plan it submits is not approved.

The precise content of the plan is not defined by the regulations, since the measures to be taken vary according to the company's situation. Broadly speaking, though, a rehabilitation plan:

- lists the financial or administrative measures the company intends to take to improve its situation;
- specifies the qualitative and quantitative targets set;
- states the time frame for achieving the targets.

b) The short-term finance scheme

According to the directives of the **European Union**, if the solvency margin falls below the guarantee fund (i.e. one-third of the statutory margin or the absolute minimum), the supervisory authority of the competent Member State must require the insurance company to submit a short-term finance scheme for its approval. A similar arrangement is envisaged in the great majority of OECD countries: the company must inform the supervisory authority of the nature, amount and phasing of the new funds it intends to raise to restore its solvency.

c) Appointment of a special auditor

With the exception of **Austria**, the **Czech Republic**, **Greece**, **Iceland**, **Ireland**, **Poland**, the **Slovak Republic**, **Sweden**, **Switzerland** and the **United Kingdom**, all OECD countries empower their supervisory authorities to appoint a special auditor—a member of the supervisory service or a private expert—to conduct an in-depth examination of a financially troubled company. In most cases the auditor assists the company in drawing up the rehabilitation plan. This step is generally taken when on-site supervision has revealed serious problems in the company's bookkeeping or internal control procedures that do not show up in its submitted reports.

d) Prohibition of free disposal of all or part of company assets

This measure is taken in all OECD countries when a company has not set up adequate technical provisions or if these are not covered by a corresponding amount of admissible assets. The company may also be prohibited from investing in risk assets, required to liquidate certain assets, or required to repatriate the share of assets invested abroad needed to cover its domestic liabilities.

e) Restriction of all or part of company activity

When an insurance company's financial situation deteriorates to the point where the interests of policyholders and beneficiaries are compromised or likely to be, the supervisory authorities may decide to prohibit it from engaging in certain transactions or to limit its activities. Among other things, the authorities may limit the volume of premiums received (**Denmark**, **Ireland**, **Korea**, **Netherlands**, **Spain**, **Turkey**, **United Kingdom**), oblige the company to review its reinsurance programme (**Korea**, **Netherlands**, **Turkey**), or prohibit the payment of dividends to shareholders and distribution of surplus to policyholders over the legal or contractual level.

In the great majority of OECD countries the supervisory authorities are also empowered to suspend a CEO or board member and to temporarily appoint an administrator of their choice who would substitute for the firm's executive bodies (chairman, directors, officers, etc.) in exercising their powers and obligations.

f) Temporary suspension of activity

In a number of OECD countries (**Austria**, **Belgium**, **Denmark**, **Finland**, **Germany**, **Italy**, **Japan**, **Korea**, **Spain**, **Switzerland**, **United Kingdom**), the supervision authority may order a suspension of the company's activity or fix a period during which policyholders are not required to pay their premiums or the insurer to pay lump-sum benefits and indemnities (payment of annuities continuing in principle). Suspension does not necessarily lead to withdrawal of the licence. However, in many OECD countries, including all the Member States of the **European Union**, a regulation provides that any company having ceased its activity for a period of more than three or six months will have its licence withdrawn.

g) Compulsory transfer of all or part of the policy portfolio

When an insurer is in serious financial difficulty, portfolio transfer is sometimes seen as the best way to safeguard the interests of policyholders, especially in the case of long-term life insurance. In many OECD countries the supervision authority has the right to oblige a company to transfer all or part of its portfolio (**Australia, Belgium, Czech Republic, Denmark, Germany, Hungary, Iceland, Korea, Slovak Republic, Spain, Switzerland, United States**). In other countries (**Finland, Japan, Mexico, Norway, Turkey**) compulsory transfer exists, but the decision does not come from the supervision authority. In **France** and **Luxembourg** the transfer decision may be taken by the supervision authority or by another institution.

Unlike the case with a portfolio transfer organised voluntarily by a company, compulsory transfer does not generally necessitate the prior agreement of policyholders. They are nevertheless informed beforehand and any objections they may have are taken into account in the deliberations preceding the final decision. In many countries, policyholders are entitled to terminate their policies rather than have them transferred (**Australia, Belgium, Finland, Hungary, Iceland, Luxembourg, Mexico, Norway, Spain, Switzerland, Turkey, United States**).

In cases where other companies are unwilling or reluctant to accept the portfolio, the policyholder protection fund (see below) may step in and either take over all or part of the portfolio or offer the receiving company the additional assets needed for it to agree to the transaction.

h) Partial or total withdrawal of licence

In all OECD countries the heaviest penalty that can be imposed on an insurance company is the partial or total withdrawal of its licence. This step is taken only in the last resort when there seems to be no way to improve the company's situation. It triggers the winding-up procedure.

For policyholders, the consequences of a total withdrawal of licence differ depending on whether the portfolio is transferred to another insurance company, taken over by a guaranty scheme or included in the winding-up procedure. Policyholders may find that their premiums have been increased (**Czech Republic, Finland, Germany, Iceland, Japan, Korea, Norway, United States**) or their benefits reduced (in the same countries, except **Korea**, and in **Belgium, Denmark, France, Hungary, Mexico** and **Sweden**). As an alternative they may have the right to terminate their policies (**Czech Republic, Denmark, Finland, Germany, Hungary, Iceland, Italy, Japan, Mexico, Norway, Slovak Republic, Switzerland, Turkey, United States**).

Of the different measures discussed here, withdrawal of licence is the only one systematically published (in an official gazette, in one or more specialised journals or in one or more national daily newspapers, depending on the country).

C. *Protection of policyholders in the event of insolvency of an insurance company*

Notwithstanding all the supervision schemes that exist and all the rehabilitation measures that may be taken, insurance companies can become insolvent. Thus, in order to protect the interests of policyholders in the event of insolvency of an insurance company, certain special regulatory arrangements are normally established. These arrangements can be divided into two groups: those in the winding-up procedure and those outside it. The former type of arrangement is used in most jurisdictions. Such arrangements vary considerably across jurisdictions, however, largely depending on the peculiarity of the

judicial insolvency procedures of respective jurisdictions. In addition, in many jurisdictions, policyholder protection funds (or guaranty schemes) have been established to provide certain protection for policyholders outside of the winding-up procedure.

1. Liquidation

The rules and regulations of OECD countries concerning liquidation differ on many points, particularly on the conditions for initiating a rehabilitation or winding-up procedure and the order of priority of creditors.

An insurance company remains under the supervision of the authority concerned (sole authority or insurance supervision authority) until the end of the winding-up procedure, i.e. until the company has discharged all its liabilities or, if the disposable assets are insufficient for this purpose, until it is declared bankrupt.

Liquidation of an insurance company may be requested by the company itself (all OECD countries except **Turkey**), by the supervision authority (all OECD countries except **Switzerland**) or by one of the creditors (**Australia, Belgium, Denmark, Finland, France, Hungary, Iceland, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom**). In most OECD countries the decision to wind up a company is taken by the competent legal authority and a receiver is appointed, usually by the competent court but in some cases by the supervision authority or on its proposal.

In the winding-up procedure, policyholders receive preferential treatment in all OECD countries except the **United Kingdom**. The status of policyholders among the creditors accorded priority by the legislation on bankruptcy (employees, tax authorities, social security authorities, bankruptcy petitioner) differs across jurisdictions. In most jurisdictions the preferential payments made to policyholders are limited to the assets representing the technical provisions or mathematical reserves, but in some they are also made from the company's total assets (**Canada, France, Korea, Mexico, Norway, Spain, Turkey, United States**).

2. Policyholder protection funds or guaranty schemes³³

When an insurance company becomes insolvent, policyholders will possibly suffer financial losses, as their claims may not be fully met. In order to protect policyholders in such a situation, many countries created a fund to compensate their losses.

Policyholder protection funds are fairly common among OECD countries. At least 21 countries have one or more such funds. These funds can be divided into two types. The first type comprises the funds that focus on the policyholders of one or a few branches of insurance. The funds of the second type cover most of the contracts subscribed to by the participating insurance companies. The former type is often referred to as a fund for a specific class of insurance, while the latter is known as a general fund.

33. For more information on guaranty schemes, see *Policyholder Protection Funds*, paper for the Insurance Committee, OECD, November 2000, published in *Policy Issues in Insurance*, June 2001.

a) Funds for specific classes of insurance

A fund for a specific class of insurance is normally established in association with compulsory insurance. The typical example is a fund for compulsory motor vehicle liability insurance. The purpose of this compulsory insurance would not be achieved if the insurer were insolvent and unable to pay a claim. A fund is therefore established to compensate the losses sustained by accident victims in such circumstances. It also steps in when the party responsible for the accident cannot be identified or is uninsured and thus no insurance protection is available for the victim.

The majority of OECD countries have funds that cover compulsory motor vehicle liability insurance exclusively (for the **European Union**, the establishment of such a fund is provided for by Article 1 of the second European directive on compulsory motor vehicle insurance³⁴). Some countries also have funds that cover other branches of compulsory insurance: hunting accidents (**France, Italy, Spain**), certain categories of agricultural accident (**France, Italy, Japan, Poland**) and industrial accidents. These funds usually provide full compensation.

b) General funds

In contrast to a fund for a specific class of insurance, a general fund covers a wide range of insurance classes, both compulsory and non-compulsory, including most of the products of a not particularly specialised insurance company. Such a fund can ensure the payment of claims to policyholders when a company becomes insolvent and unable to meet its financial obligations. While the benefit of a fund for a specific class of insurance in ensuring the protection of the beneficiaries is widely recognised, the necessity of creating a general fund is not agreed upon internationally. To date only nine OECD countries—**Canada, France, Ireland, Japan, Korea, Poland, Spain, the United Kingdom** and the **United States**—have set up such funds. In recent years, however, there has been an increase in the number of funds created, and this trend will most likely continue.

Fund structure varies widely across countries as regards:

- the branches of insurance covered: life (**Canada, France, Japan, Poland, Spain, United States**), non-life (**Canada, Ireland, Spain, United States**), or both but in separate accounts (**Korea, United Kingdom**);
- eligibility of claimants : for example, **Ireland** and the **United Kingdom** limit fund coverage to natural persons;
- compensation limits: some countries have chosen to cap payments (**Canada, France, Korea, United States**), others limit compensation to a percentage of the claim (**Japan, United Kingdom**), and two countries (**Ireland, Poland**) apply both these techniques;
- funding: contributions from member companies are levied according to the pre-funding method (**Japan, Korea**), the post-funding method (**Ireland, Poland, United Kingdom, United States**) or both (**France**); the State may also provide funding (**Japan, Korea**);

34. Second Council Directive of 30 December 1983 on the approximation of the laws of the Member States relating to civil liability in respect of the use of motor vehicles.

- assessment of contributions: on the basis of premiums (**Canada, Ireland, Poland, Spain, United Kingdom, United States**), premiums and technical provisions (**Japan**), technical provisions only (**France**), premiums and the company's risk category (**Korea**).

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