
THE ACTUARIAL VALUATION PRINCIPLES IN THE PROPOSED EUROPEAN COMMUNITIES THIRD LIFE ASSURANCE DIRECTIVE

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The purpose of this paper is to describe the actuarial valuation principles that have been included in the proposed Third Life Assurance Directive of the European Communities (EC). This may be of interest, first because the principles attempt to reconcile the very different practices and traditions used in different countries of the EC by means of principles rather than by rigid rules, and secondly because the actuarial profession has been given the opportunity to present proposals which were agreed by all the actuarial associations in the EC and have been included with very little change into proposed legislation. The paper starts, however, by outlining the process whereby legislation is introduced into the EC.

Legislation in the European Communities is usually introduced through Directives. Directives start out by being drafted within the offices of the Commission of the European Communities, the "civil service" of the Communities with offices in Brussels. Once the Commissioners are happy with the draft, it is put forward as a proposal from the Commission, somewhat equivalent to a Bill in Anglo-Saxon legislatures. The proposed Directive goes before the European Parliament (consisting of elected representatives) and in some cases the Economic and Social Committee of the Communities (which consists of members appointed by Governments to represent the interests of employers, employees and "independents"). These two bodies are asked for their Opinions. The proposed Directive also goes before a suitable working party of the Council of Ministers, representing the governments of the Member States of the Communities. After discussion the Council of Ministers may reach an "agreed position", i.e. a revised version of the Directive. This goes back to the European Parliament for further comment, and the Directive is finally approved by the Council of Ministers, in many cases using a weighted majority system of voting, though in some important fields such as taxation unanimity is required.

Once approved by the Council of Ministers the Directive passes into law. Usually the Directive instructs the Governments of Member States to alter the laws in their own country to conform with the Directive, and usually a period of two years is given for doing this. How the Governments of the Member States put Directives into effect depends on their own system of legislation. In the United Kingdom many Directives require only regulations to be promulgated by the Minister (Secretary of State) of the appropriate Department; in other cases primary legislation is needed.

All along the line there is opportunity for interested parties to "lobby", either the Commission before the Directive is proposed, the European Parliament and the Economic and Social Committee while their Opinions are being drawn up, and the civil servants or ministers in Member States when the Directive is with the Council working parties.

The fourteen actuarial associations in the twelve Member States of the Communities have formed a liaison group, the Groupe Consultatif des Associations d'Actuaires des Pays des Communautés Européennes, or Consultative Group to give it its short English title. Besides acting as a channel of communication for the various actuarial associations it acts as a focus for representations to the Community bodies who are more willing to listen to representations from Community-wide organisations than from those from only one country. The national associations generally make representations to or through their own governments.

The First Life Assurance Directive was approved in 1979. This allowed life companies established in one Member State to do business in another Member State, subject to being also approved and supervised under the legislation of the "host" Member State. It established a common minimum capitalisation and common solvency margin, principally 4% of the valuation reserves; but it did not stipulate how those valuation reserves were to be calculated. Nor did it say anything about how premiums were to be calculated. These continued to be supervised by each Member State in accordance with its own local practice. In some Member States premium rates and valuation bases are laid down by legislation, in others they are determined by the insurance supervisory body, in others agreed jointly by a cartel of life offices with the approval of the supervisory body, and in some states premiums and valuation bases can be chosen by the company, subject, in the case of the United Kingdom, to a minimum valuation basis (which is far from being a universal basis). There is therefore a considerable variety of premium bases and valuation bases in use in different Member States.

The Second Life Assurance Directive, approved in 1990, permits life offices established in one Member State to write policies for proposers in other Member States, and allows brokers to place business with life offices in other Member States. These were practices which some Member States previously prohibited, though others allowed them. The provisions of the Second Life Assurance Directive have not yet generally come into effect.

In accordance with the principle of establishing a single market within the Communities for all goods and services, the Commission, early in 1991, proposed a Third Life Assurance Directive, also known as the Life Framework Directive. This has been considered by the European Parliament and the Economic and Social Committee, and their Opinions are referred to below. It is now with working parties

of the Council of Ministers, and it is expected that it may be approved sometime during 1992.

Non-life insurance has been dealt with in a parallel series of Directives. The Third Non-Life (Framework) Directive is somewhat in advance of the Third Life Directive, and it is expected that it will be approved by the Council of Ministers early in 1992.

The main point of the Third Life Assurance Directive is that it would permit a life company established and supervised in one Member State to sell life insurance to proposers in any other Member State, either directly or through branches, without special authorisation or supervision in the host Member State. The principle is that of a "single licence", and supervision only by the home Member State. This principle would apply to life companies whose principal office is in a Member State of the Communities, and also to "immigrant" life offices whose principal office is outside the Communities, which in future would be supervised only in one Member State.

Clearly such a régime would have a substantial effect on the market in those Member States where premium rates and valuation bases are regulated uniformly. The proposal has attracted considerable opposition from insurers and their representative organisations in several markets, and it is not yet clear whether the fairly liberal approach of the Directive will achieve majority support in the Council of Ministers.

A critical matter in drafting the Directive was what should be done about valuation bases. The problem had been highlighted with the judgement of the European Court of Justice of 4 December 1986 in Case 205/84, *Commission v Federal Republic of Germany*, in which the Court held that it was reasonable for the German supervisors to require that any insurance company attempting to provide services in Germany should also be authorised there, even though it did not need to be established there. The Court had heard evidence that the method of calculation of technical provisions differed from country to country, and it felt that without further study it was not possible to say that the different methods produced equally prudent results. Although the case applied to non-life insurance, the conclusion would have applied even more strongly to life insurance.

The Commission asked the Groupe Consultatif to study the matter. It would have been an immense task to consider the valuation basis for every possible class of policy in each Member State, and in any case many classes of policy are not written throughout the Community. The Groupe did, however, compare the valuation methods and bases for the most common type of life assurance policy, a with profits endowment assurance, and concluded that although the methods differed substantially, the resulting amounts were very similar in all the countries studied. Its Report to the Commission ("*Report on the Calculation of Technical Reserves for Life Insurance in the Countries of the European Communities*") explained also that it was inappropriate,

unnecessary and possibly harmful to consider a uniform basis throughout the Community, requiring the same mortality tables and interest rates everywhere in spite of different experience and different currencies.

Instead, it suggested that the existing methods, all of which were at present sufficiently prudent, should be supported by a set of actuarial principles to ensure that they always remained sufficiently prudent. The Commission then asked the Groupe to draft a suitable set of actuarial principles, which it did, after much discussion among its members.

These principles were put into a Report by the Groupe to the Commission ("*Report on a System of Actuarial Principles for the Calculation of Technical Provisions for Life Insurance throughout the European Communities*") and this Report was approved at the Groupe's meeting in Paris in October 1990, and submitted to the Commission.

The Commission accepted the Groupe's Report, and, with some amendments, the principles recommended by the Groupe were included in Article 15 of the proposed Third Life Directive. At this stage it is not possible to say whether the actuarial principles will remain unscathed. Indeed they may well be changed; the Groupe Consultatif has already suggested to the Commission certain improvements in the wording.

A feature of the principles is that they try to take into account the circumstances of each Member State at present. So far as the members of the Groupe Consultatif are aware each Member State would at present have no difficulty in adhering to the principles, whatever the particular method used in that State for calculating technical provisions at present.

In many Member States the system of valuation at present is that the technical provisions are calculated using exactly the same basis as has been used for the calculation of the premiums. This method is satisfactory for with profits annual (or monthly) premium policies, provided that the premiums have been sufficiently large to begin with. But it is not the only method in use in the Communities, it is not suitable for all classes of policy, and it is not the only way in which with profits regular premium policies can be satisfactorily valued. The principles try to encompass every type of policy, and every type of suitably prudent valuation method.

The actuarial principles appear in Article 15 of the proposed Third Life Directive, which starts:

"Article 17 of the First Directive is replaced by the following:"

The principles in the new Article 17 explain how technical provisions for life insurance should be calculated. They do not specify a particular method and basis,

but leave it to each particular Member State to decide how the principles should be applied. This might be through legislation, through a basis prescribed by the insurance supervisor, or by the company actuary under the control of the supervisor. The current draft of Article 59(2) of the Insurance Company Accounts Directive requires that *"the computation shall be made annually by an actuary or other specialist in this field on the basis of recognised actuarial methods"*.

Section (1) of the new Article 17 states:

"The Home Member State shall require every assurance undertaking to establish sufficient technical provisions, including mathematical provisions, in respect of its entire business.

The amount of such provisions shall be determined according to the following principles:"

The fact that it says *"entire business"* is relevant. It is not satisfactory just to have sufficient technical provisions in respect of policies in the Home Member State, or even throughout the European Communities, and insufficient technical provisions in the rest of the world. This applies to each individual undertaking, i.e. each company, and not to a consolidated group. Each subsidiary stands on its own, and there is no requirement here that subsidiaries outside the European Communities need to demonstrate solvency to the supervising Member State.

The principles are labelled (a) to (f), and (a) is subdivided into paragraphs (i) to (vi). In effect there are eleven paragraphs in the Principles.

Principle (a)(i) states:

"The amount of the mathematical provisions shall be calculated by a sufficiently prudent actuarial valuation of all future liabilities for all existing policies, including:

- *all guaranteed benefits, including guaranteed surrender values,*
- *bonuses which have already been guaranteed, whether described as vested, declared or allotted,*
- *options available to the policy-holder under the terms of the contracts,*
- *expenses, including commissions,*

taking credit for future premiums due."

The calculation must be made by a sufficiently prudent actuarial valuation. This means that it must be done according to proper actuarial principles. It obviously should cover all existing policies, and the fact that it refers to future liabilities implies that a prospective method is the natural one to use.

The valuation must be sufficiently prudent. There are those who may argue that this is imprecise, but actuaries know what sufficiently prudent means, and Principle (a)(iii) explains this further.

The various indents list the benefits that should be taken into account. Obviously all guaranteed benefits, like the basic sum assured or amount of annuity, need to be covered. Guaranteed surrender values are mentioned and the implication is that the provisions need to be enough so that all future guaranteed surrender values can be met at the time they may be called upon.

All guaranteed bonuses must be covered, and the three English words used, "*vested, declared or allotted*", are simply intended to cover all the different words in English that may be used to describe guaranteed bonuses. The Commission translators had some difficulty in finding equivalents in other languages, not realising that these just listed all the names that might apply to a single concept.

Options available for policyholders also need to be valued. One option, mentioned already, is to take a surrender value, but there may be other options, such as the right to convert maturity proceeds into an annuity at a guaranteed rate, or to extend the cover under the insurance, perhaps by increasing the sum assured or extending the term. An appropriate allowance should be made for such options.

Future expenses, including commissions, also need to be valued. This is unusual for those who think in terms of a net premium valuation, but Principle (c) explains this further.

Finally the present value of future premiums due under the policy can be deducted. At this stage the actual office premium is being referred to, not an artificial net premium. This is, however, considered in Principle (e).

Principle (a)(ii) states:

"The use of a retrospective method is allowed, if it can be shown that the resulting technical provisions are not lower than would be required under a sufficiently prudent prospective calculation or if a prospective method cannot be used for the type of policy involved."

This is a principle that was put in by the Commission, after representations from somewhere. However, it is not easy to see the circumstances in which a retrospective valuation would be appropriate. There are several classes of policy where a current value is appropriate - most unit linked policies, the French "capitalisation" policies or what in Britain and America are known as "deposit administration" pension plans. But it would be unusual to find a policy class where it would be appropriate simply to accumulate past premiums with interest minus expenses and claims and say that that is a reasonable estimate for the future liability.

Principle (a)(iii) states:

"A prudent valuation is not a "best estimate" valuation, but shall include an appropriate margin for adverse deviation of the relevant factors."

The concept of a "best estimate" valuation might be appropriate in accounting in other businesses, but this principle explains that it is not appropriate in life assurance. By "best estimate" is meant an estimate which is equally likely to be too high or too low, so that there is a 50% chance of it being insufficient. Actuaries and insurance supervisors would normally consider that an appropriate chance of insolvency should be more like 1 in 1,000 or much less, not 1 in 2. The solvency margin required by the first Life Directive (which is unchanged by the proposed Third Life Directive) is not designed to cover the difference between a 1 in 2 chance and the desirable level of prudence.

Principle (a)(iii) goes on to say that the valuation should include an appropriate margin for adverse deviation of the relevant factors. "Adverse deviation" is an American phrase, and the Society of Actuaries has classified possible adverse deviation under a number of headings. This approach was not followed, but each factor - interest, mortality, expenses, etc - should be allowed for with an appropriate margin. "Appropriate" does not necessarily mean excessive. It may not be appropriate to pile margin on margin, and it may be appropriate to take account of the fact that a solvency margin is required in addition to technical provisions.

It is, however, appropriate to take account of adverse deviation of asset values, and what in Britain are known as "mismatching reserves" are required by this principle. This is particularly appropriate if assets are valued at market value.

Principle (a)(iv) states:

"The valuation shall take account of the method of valuation of the corresponding assets, depending on the type of policy, and the extent to which specific assets can be identified."

This principle may be unfamiliar in many countries. Its most obvious relevance is in relation to unit linked policies: if the assets are valued at market value, then the current unit liability should be put in at the same value. It would be quite inconsistent to put assets at market value and unit liability at original cost, or vice versa.

Another example: annuities in course of payment usually have no future premiums due. If those annuities are without profits, as is usual in some countries though not in others, then it is quite acceptable to value them using close to market rate of interest, provided that corresponding matched assets, in the form of dated fixed interest stocks with the right distribution of dates, are in fact held. If they are not held, or cannot be held, then either suitable mismatching reserves must be set up, or a rate of interest that is more cautious to a suitable extent must be used.

Similarly, if with profit contracts are covered very substantially by ordinary share investments, then suitable mismatching reserves are needed. The effect of the present British regulations is that ordinary shares can be brought in at 75% of their market value, but this is expressed as an addition to the provisions for policies, so that if, for example, the sum assured and guaranteed bonus have together reached 100 just before maturity, a reserve of 133.33 needs to be held - assuming 100% investment in ordinary shares, which would be unusual. In order to give full value to the policyholder a terminal bonus of 33.33% might be paid. It would be unusual for an office to have as high a percentage as this in ordinary shares, and many terminal bonus rates are lower than 33.33%, though some are also much higher than this.

Principle (a)(v) states:

"Technical provisions shall be calculated separately for each contract. The use of appropriate approximations or generalisations is allowed, however, where they are likely to give approximately the same result as the individual calculations. The principle of separate calculation shall in no way prevent the establishment of additional provisions for general risks which are not individualised."

This principle makes three separate points. In general individual calculation is expected. This is nowadays usual, because of the power of computers, but in the past it was not.

Therefore the second sentence, allowing appropriate approximation or generalisations, has been inserted, either for those companies that still use old-fashioned methods, or for certain cases where extreme accuracy is possible, but simply not worth it. An example of this might be widow's pensions, where the life office might, with an effort, be able to obtain information about the present marital status and date of birth

of the present wife of the insured, but where the sensible method is to assume an overall proportion married and an average age difference between husband and wife.

The third sentence permits, but does not expressly require, additional global reserves where these are appropriate. Three examples of these are: in Britain companies have set up separate global reserves to cover possible extra claims because of AIDS: because the calculation method showed that additional claims might occur both according to age and according to future calendar year, it was not easy to make a specific allowance for each individual policy, and a global addition was thought more appropriate.

Secondly, in Britain a number of companies which first wrote unit-linked policies provided a guarantee that at maturity the benefit would not be less than the sum of the premiums paid. Investigations by a working party of the Institute of Actuaries in the late 1970s showed that this was a particularly risky guarantee to give. However, the cost of the guarantee depended not on individual policies, but on the spread of a portfolio of policies over successive years. A separate portfolio reserve was therefore appropriate.

Thirdly, with rather small companies an important consideration is the overhead expenses that may be incurred in future years. This may be appropriate either for companies just starting up, or companies that are closed to new business and are running down. In either case the allowance for overhead expenses cannot be on a per policy basis.

Principle (a)(vi) states:

"Where the surrender value of a policy is guaranteed, the amount of the mathematical provisions for the policy shall be at least as great as that value."

This makes explicit that the total provision must be at least as great as the immediately available surrender value, and elaborates the reference to guaranteed surrender values in Principle (a)(i).

Principles (b) to (f) elaborate the basic Principle (a).

Principle (b) states:

"The rate of interest used in the calculation of the technical provisions shall be chosen prudently, taking into account the currency in which the policy is denominated, and having regard to the yield on the corresponding existing assets and to the yield which it is expected will be obtained on sums to be invested in the future."

The rate of interest is probably the most important element in the valuation basis for most classes of policy, and it is made explicit that this must be chosen prudently. It is appropriate to take account of the currency in which the policy is denominated, because interest rates vary from one currency to another. It is also appropriate to take account of the yield on the present assets (having regard to the way in which they are valued - i.e. market yield if market value is used, yield on book values if that method of valuation has been used). It is also appropriate to take into account the yield which it is expected can be obtained on sums to be invested in the future. This would mean, for example, where market yields are unusually high, allowance should be made for a possible fall in market yields over future years. This is in fact one of the present rules in the British valuation regulations, where a maximum rate of interest is specified for sums to be invested more than three years ahead.

It has been suggested in the Opinion of the Economic and Social Committee that a maximum rate of interest should be specified by each Member State, but by the Member State of the commitment, i.e. of the policy, not by the home Member State, responsible for supervising the company. There should be no problem in a maximum rate being specified by the supervising Member State, in respect of future investments. But the maximum rate needs to depend on the currency in which the policy is denominated - at least for as long as there are separate currencies within the European Community - it may need to be varied from time to time, and it should be realistic in relation to actual yields on suitable securities in the market. If such a maximum rate of interest were to be applied by supervisors to the whole reserves, not just in respect of future investments, then it should quite close to market yields, without an excessive margin.

If valuation regulations had been drawn up in Britain in the late 1940s, a prudent maximum rate for future reinvestment would have been 2%. Market rates were 2½%, and expected to fall, and many insurance companies used 2% or 2¼% interest in their valuations. By the time the present regulations were in fact introduced in the mid-1970s, a rate of 7.2% on investments to be made more than three years into the future seemed appropriately cautious, current yields on long term securities having risen in the meantime to 17%.

Currently 7.2% seems still reasonably prudent, but in years to come it might well become necessary for it to be reduced. While, therefore, it may be quite appropriate for supervisors to specify a maximum rate of interest in the regulations applicable within one Member State, these regulations need to vary from time to time, and it is not appropriate for a maximum rate to be specified in a Directive, which it would be very slow and very difficult to get changed.

Further, although this paper is written generally from a British point of view, in which the Appointed Actuary generally determines the valuation basis, subject to the constraints of the current regulations, the principles in the Directive will be binding

in the first instance on Member States, who may quite well apply them by prescribing a statutory valuation basis. So long as a statutory basis is sufficiently prudent and in accordance with these actuarial principles, this is quite satisfactory.

Principle (c) states:

"The elements of the statistical basis and the allowance for expenses used in the calculation of the technical provisions shall be chosen prudently, having regard to the State of the commitment, the type of policy, and the administrative costs and commissions expected to be incurred."

There are really two separate points included in this one sentence. The mortality basis for life assurance and annuities, or the appropriate demographic factors for other policies, sickness for long term sickness policies and waiver of premiums, accidental death rates where double indemnity cover is granted, need to be prudent, but should vary from one territory to another, and should vary from one class of policy to another, being sufficiently heavy for life assurance, and sufficiently light for annuities and pensions contracts.

Secondly, the allowance for expenses needs to take into account the territory of the policy and the type of policy and the costs actually likely to be incurred.

It is not sufficient just to use the mortality basis and expense loadings in the original premiums. The mortality of annuitants may have improved more than expected, or the mortality of assured lives worsened, perhaps because of AIDS. Similarly, inflation may now mean that the administrative costs for policies of small value are more than the expense loadings in the premiums. This needs to be allowed for.

Principle (d) states:

"In the case of participating policies, the valuation method shall take into account, either implicitly or explicitly, future bonuses of all kinds, in a manner consistent with the other assumptions on future experience and with the current method of distribution of bonus. Where no explicit allowance is made for future bonuses a technical rate of interest shall be used which is lower than the rate chosen according to point (b) by an appropriate amount."

This principle, and the following one, (e), allow certain elements to be taken into account implicitly rather than explicitly.

There are two methods whereby future bonuses can be allowed for. One is to include an allowance for future bonus and to use a realistic, perhaps market, rate of interest. The other is to ignore future bonus and use a suitably low technical rate of interest, probably with assets valued at book values, or at market values minus a substantial

margin. It is sometimes useful to explain to non-actuaries that the technical rate of interest is roughly equal to the difference between the rate of interest expected to be earned and the bonus rate, expressed as a percentage of the reserves. The technical rate of interest for with profits policies therefore depends very much on what sort of bonus rate is built into the premiums and what sort of bonus rate is realistically expected, and not just on what a prudent long term interest rate might be.

It is also important that where assets are valued at market value, and most of the assets are intended to benefit the with profits policyholders, that an appropriate allowance for all future bonuses, including terminal bonus, is made. Otherwise the impression is given that the surplus is available for the shareholders, or perhaps the tax authorities, to take away. There are at least three satisfactory ways of expressing an allowance for future terminal bonus; one is to include assets at market value, and include an explicit allowance for future terminal bonus, taking account of the fact that the solvency margin needs to be set up on top of this; a second is to value assets at market value minus a large margin, often described as an investment reserve or a mismatching reserve, and make no explicit allowance for terminal bonus; the third is to value at book value, showing the market values in a note to the accounts, as will be required by the Insurance Company Accounts Directive, and also to make no explicit allowance for future terminal bonus.

Principle (e) states:

"Allowance for future expenses may be made implicitly, for instance by the use of an appropriate net premium. However the overall allowance, implicit or explicit, shall be not less than a prudent estimate of the relevant future expenses."

This principle allows a net premium to be used, rather than the gross office premium, and indeed there is nothing to stop the classical net level premium method being used, or a Zillmerised premium. However, it is necessary to check that the allowance for future expenses, i.e. the difference between the gross office premium and the net premium being valued, is likely to be sufficient to meet the actual expenses and commissions due in future. A common way of doing this at present in Britain is to restrict the net premium valued to a percentage, perhaps 90%, of the office premium.

Principle (f) states:

"The method of calculation of technical provisions from year to year shall be such as to recognise profit in an appropriate way over the duration of each policy, and shall not be subject to discontinuities arising from arbitrary changes to the method or the bases of calculation."

The first part of this principle does not state what an appropriate way of recognising profit over the duration of the policy is: this is left to the discretion of the supervisory body or of the actuary, or even of the accounting principles used by that particular company or in that particular Member State. But it does suggest that the question of how profit emerges over the course of the policy should not be entirely ignored.

One appropriate method may be to carry all the initial costs as a loss in the first year, and allow profits to be recovered over the whole course of the policy; this would be effected by using the net level premium method. Another might be to show a smaller initial loss and consequently smaller future profits by using a Zillmerised or similar method. It would generally not be appropriate according to good accounting principles to take account of all possible future profit at the very beginning of a policy when it is first put on the books, yet if the policy has been sold at a sufficiently high premium, so that a satisfactorily prudent reserve can still be set up after taking profit into account, then there is nothing in the actuarial principles to prevent this.

The second part of this principle requires that the valuation basis should not be changed around by the company at its whim. This does not mean that appropriate changes cannot be made. For example, it may be quite appropriate to value a particular class of business using market rates of interest each year, and for these to change from year to year. Provided that the corresponding assets are also valued at market value a proper result is obtained. More usually, the valuation basis remains the same from year to year, unless there are very special factors, such as the incidence of AIDS, that require a reconsideration of the basis. But to value using a gross premium method one year, a net premium method the next, with Zillmerisation in the following year, would seem to be unacceptable, because it would be difficult for supervisors to understand the progress of the company from year to year.

That is the end of the actuarial principles but the rest of Article 15 and Article 16 of the proposed Third Life Directive are also of interest.

The revised Article 17(2) states:

"Assurance undertakings shall publish the bases and methods used in the calculation of the technical provisions, including provisions for bonuses."

This was one of the suggestions of the Groupe Consultatif. Such publication may not be necessary where the supervisor lays down a standard valuation basis which all companies must observe, but it is appropriate in those countries where companies have some discretion. Quite what is meant by "publication" may differ from country to country. It is not appropriate just for the supervisor to be told. The interested general public also need to be able to find out. The "interested general public" includes policyholders and their advisors, other insurance companies, insurance

brokers and their advisors such as consulting actuaries, and also present and prospective shareholders and those who advise them, such as stockbrokers. Although the average shareholder and average policyholder may not be able to understand the significance of an actuarial valuation basis, what is really important is that those who can understand have access to relevant information.

In Britain, the statutory returns to the supervisor are public, and anybody sufficiently interested can in practice receive a copy of them. They are designed to give enough information so that an independent actuary can make an approximate valuation of the liabilities and not only look at the basis but approximately check the results.

The revised Article 17(3) states:

"The home Member State shall require every assurance undertaking to cover the technical provisions in respect of its entire business by matching assets, in accordance with Article 21. In respect of business written in the Community, these assets must be localised on the territory of the Community. The home Member State may, however, permit relaxations in the rules on the localization of assets."

The Article referred to is Article 21 of the proposed Third Life Directive. This section may seem to be rather out of place in this article, but it links across to Article 17 of the proposed Third Life Directive, which discusses how the assets shall be invested. These asset articles are not discussed in this paper.

Article 16 of the proposed Directive states:

"Premiums for new business shall be sufficient, on reasonable actuarial assumptions, to enable undertakings to meet all their commitments having regard to all aspects of their financial situation."

This does not concern the actuarial principles for reserves, but it relates to the other major actuarial function, the calculation of premiums. The present wording would allow a company which had sufficient free assets to sell new business on which it expected to make a loss, paid for out of the free assets. There are those who think that premiums for new business should be sufficient to pay the relevant claims and expenses without incurring losses. The Groupe Consultatif has suggested to the Commission and the other institutions of the Communities that this might be reworded to state:

"Premiums for new business shall be sufficient, on sound actuarial assumptions, to enable undertakings to meet all their commitments, to build up the technical provisions required, and to maintain a continuing adequate solvency position, taking account of all aspects of their financial situation."

How this will be decided by the time the Council of Ministers comes to approve the Directive is not yet clear, but either way the calculations of premiums will need to be done using the same sort of actuarial principles as apply to technical provisions.

In this paper the words "*provisions*" and "*reserves*" have been used rather indiscriminately, because to actuaries they have almost the same meaning. However, to accountants in some countries provisions and reserves are different. They are different not only in English, but also in several other languages. Provisions are required to meet specific liabilities; reserves are rather less definite. There is no doubt that the technical provisions for insurance contracts are provisions in the accounting sense, although actuaries and insurance supervisors have been accustomed to calling them reserves. In the First Life Assurance Directive the words "*mathematical reserves*" were used, whereas in the Third one "*technical provisions*" have been used. To actuaries, and hopefully to the Commission, to insurance supervisors and to lawyers, they have the same meaning.

The actuarial principles use the words "*sufficient*", "*sufficiently prudent*", "*appropriate margin*" etc. In general responsible supervisors and responsible actuaries know what these words mean, though what is sufficiently prudent depends on the circumstances at each particular time and of each particular company, and finally is a matter of judgement. Actuaries in most of the Member States of the European Communities are accustomed to using their judgement, and the principle of publishing the valuation basis allows their judgement to be questioned by supervisors and by their peers. But lawyers are also familiar with the concepts of someone taking sufficient care or behaving suitably responsibly in a great many other fields, and courts if necessary are able to take all the facts into account and decide whether a particular decision was, in the circumstances, sufficiently prudent.

Unfortunately a very damaging suggestion has been made by the Economic and Social Committee of the Communities in its Opinion on the Third Life Directive, and a similar suggestion seems likely to be made by the European Parliament in its Opinion. This relates to the connection between premium rates and reserves.

The Economic and Social Committee has suggested in its Opinion that the rate of interest used in calculating technical provisions shall *not be higher than* that used for calculating the premiums. The European Parliament has not yet completed its consideration of the Directive, but it is likely to suggest that the technical interest rates should be *the same* for both premiums and technical provisions.

Although similar bases for premiums and for technical provisions are in fact usual in a number of Member States, but in those Member States it is also usual for the relevant policies to be with profits. Since the technical rate of interest represents the difference between the rate of interest expected to be earned and the rate of bonus expected to be declared, it does not matter too much what rate of interest is used for

both premiums and reserves, so long as they are both sufficiently low. A particularly low rate of interest in the premiums just means that a higher allowance for future bonus is included in the premiums, and in due course this will emerge over the course of the policy.

There is, however, a technical problem in Britain; there is no requirement for a premium basis ever to be specified; there are only premium rates. Many long-established companies have premium rates that they have used for decades or even for a century or two. They do not know the original basis on which the premiums were calculated, and it does not matter. They are particularly high premiums for the basic sum insured, as the Groupe discovered in its comparison of reserving methods throughout the Communities. But if the premium basis is unknown, it is difficult to require that the reserving basis should be the same. The reserving basis has to be known.

However, a more important point applies to without profits business, particularly that paid for by single premiums, such as annuities, in particular pension annuities, of which there are a great many in some Member States.

It is appropriate for the reserving basis for such policies to be sufficiently prudent, so that it is very unlikely that the office will have insufficient assets to pay the promised benefits. Yet it would be quite inappropriate to charge the policyholder on this basis. It would mean that the policyholder was almost always going to be overcharged. Instead, it is appropriate for the premium to be rather close to a "best estimate" basis, perhaps being a little more prudent than that, to provide a modest expected profit to the office.

One may ask how the office can set up an initial reserve which is bigger than the premium paid. This has to come from shareholders' capital, and they expect to get their capital back when it is no longer needed, together with an appropriate profit on it; this profit does need to be included in the premium.

So the position is that if the reserving basis is sufficiently prudent, and the premium basis is made the same as the reserving basis, then policyholders are overcharged, which is not in the consumers' interest. Alternatively, if the premium basis is a fair one and the reserving basis is made the same, then this is insufficient and would breach the actuarial principles.

It is simply unsound to suggest that the basis, or even the interest rates, should be the same for premiums and reserves, though it would normally be sound if the rate for reserves were lower than that for premiums *at the time the policy is issued*.

But a second practical difficulty relates to the fact that premium rates for without profits single premium annuities and pensions may very well vary very frequently, depending on the rates of interest obtainable in the market. There is no particular sense in requiring policies which provide identical future benefits, but which have been bought at different times in the past, to be valued on the original premium basis, rather than all on the same appropriate current basis. Indeed, in Britain it would be exceptionally difficult for companies to trace the original premium basis for their existing policies, though they could presumably alter their systems to do so in the future.

Many of the examples in this paper have come from Britain. There are two reasons for this: obviously the author is more familiar with the British position than with that in other Member States, though the method of supervision in Ireland is very similar to that in Britain. And secondly, Britain and Ireland are countries where life office actuaries have had to consider the principles on which technical provisions need to be calculated, and have, over the years, had many discussions about appropriate principles and methods. This contrasts with those countries where a single method and basis has been laid down in law or by the supervisors, and used by everyone. Such methods are satisfactory in each country. But they are not the only methods. The problem is that those who have worked in such an environment do not know the alternatives.

This paper is based substantially on a talk given by the author to the Actuarieel Genootschap (the Dutch actuarial society) at its meeting in Utrecht on 10 December 1991