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**SOLVENCY STANDARDS FOR LIFE COMPANIES IN THE
UNITED STATES, CANADA, AND THE
UNITED KINGDOM**

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(See opposite page for topics discussed.)

MR. EDWARD A. LEW: For a quarter of a century following the close of World War II the United States enjoyed a period of remarkable economic growth and stability. The country stood for a while at a peak of political and financial strength. These fortunate circumstances tended to make us unmindful of history; the many years of freedom from serious business depressions led some economists to suggest that the business cycle had become obsolete.

We have since learned better. It appears that we have now entered an era of critical economic uncertainties. The combined growth of the industrial nations was virtually zero in 1974 and the record for 1975 was not significantly better. The industrialized world probably suffered a setback comparable with that of the 1930's.

Even though economic recovery is well under way in the United States, it is accompanied by fears of renewed inflation. There is no evidence that the basic inflationary structure of the country has been altered. The chances are that the Congress will continue to react to political pressures with spending programs that exceed the government's ability to pay for them out of current revenues. Moreover, we cannot look to sizable increases in productivity to offset inflation so long as workers move in large numbers from manufacturing and like industries to public and private services where productivity gains are hard to achieve. The abrupt end of cheap and plentiful sources of energy as well as shortages and higher costs of raw materials have rendered many industries vulnerable to economic shock. The so-called third world is striving for a radical redistribution of wealth, and if it succeeds the living standards in North America and Western Europe will be adversely affected.

The prospects for the United States economy in the final quarter of this century are considerably less sanguine than they were in 1950. The country does not have the political and financial clout it had twenty-five years ago; it does not have the affluence to ignore the imperatives of capital formation. There is an urgent need for new funds to finance new energy

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industries, maintain and replace outmoded plant and equipment, provide new housing, and control environmental pollution. Yet the Federal government and state and local governments continue to pursue policies that discourage savings. Increasing governmental interference and higher taxes on industry make investment in the private sector less attractive. Some large corporations have gone quasi-public and pay less attention to the primary entitlement of the investor than to the political pressures without. Last but not least, the decay of central cities, especially in the Northeast and Midwest, casts an ominous shadow on many types of investments in these regions. It is difficult to escape the conclusion that a distinctly greater element of risk has lately been introduced into investments in the private sector. This is manifest in the recent record of bankruptcies and their staggering size.

According to 1975 Bests, the number of life insurance companies placed in receivership, entered in liquidation, merged or reinsured jumped appreciably in 1974 over 1973. The increase was most marked for small companies. However, even the giants of the business were hard hit, as is indicated by the record of the ten largest companies, ranked in order of capital and surplus funds, who reported a decline in surplus during 1974 averaging about 25 percent. So sharp a decline in surplus in one year was cause for concern to the regulatory authorities.

A rough survey of the companies that actually got into serious difficulties in 1972, 1973 and 1974 suggests that, aside from dishonesty, the principal reason for loss in surplus was the decrease in investment values during the depression and lack of liquidity. It is significant, however, that most of the companies that disappeared in 1974 were merged or reinsured, rather than placed in receivership or entered in liquidation. In other words, in many situations it was possible to step in and take action before legal insolvency occurred.

The ultimate criterion of legal insolvency is the disappearance of the legal surplus, as determined on the basis of annual (or more frequent) statements submitted to the regulatory authorities in accordance with prescribed balance sheet valuation rules and standards. This has been the traditional way for regulatory authorities to secure evidence that the companies under their jurisdiction would be able to meet their obligations. They have leaned heavily on conservative assumptions in the valuation of liabilities and on long-accepted methods for the valuation of assets, the conservatism of which is currently being questioned.

The statutory accounting for life insurance liabilities rests on the principle of including substantial margins in the valuation standards. I believe this principle has served us well. In recent years the main source of conservatism had been in the low interest rates used in the calculation of

life insurance reserves. This raises a practical dilemma, particularly on recent issues, in that very conservative reserve bases calculated at low interest rates tend to leave less funds available for surplus to cushion the impact of unexpected investment fluctuations or other losses. On the other hand it is just such conservative interest assumptions in the calculation of reserves that have operated as effective safeguards of solvency over a long period of time. Very few companies have gotten into difficulties because of shortcomings in the assumptions used in the calculation of life insurance reserves.

Companies have, however, encountered difficulties traceable to the weaknesses in the methods customarily used in the valuation of assets and the inadequacy of minimum surplus requirements.

Following World War II, when investment values did not fluctuate violently and life companies experienced a healthy cash flow, the practice of valuing highly-rated bonds and well-secured mortgages on an amortized basis raised no questions. Even when sizable differences between market values and amortized values of prime securities appeared, it could generally be assumed that the securities involved would be held to maturity so that a temporary wide divergence from market values could reasonably be disregarded. But times have changed. Highly-rated bonds may have their ratings lowered on short notice and seemingly well-secured mortgages on office buildings in central cities may drop in value precipitously. An inordinate demand for cash and loan values may force a company to sell assets that were expected to be held to maturity. When such a forced sale occurs a company may not be able to realize market values on liquidation.

The Mandatory Securities Valuation Reserve was established in happier times, primarily to smooth out fluctuations in the value of common stocks and other non-amortizable securities; it was not anticipated that such securities would comprise a significant proportion of a company's total assets and the volatility of the market for such securities was not expected to run to extremes. Recent experience suggests that the Mandatory Securities Valuation Reserve does not provide adequate or timely protection against violent fluctuations in the value of non-amortizable securities in times of serious business depression. This reserve is calculated on a rigid formula which in prosperous times builds up substantial funds, subject to high Federal Income tax, just when the funds are not needed, but fails to accumulate funds swiftly enough, or may even disappear altogether when financial difficulties foreshadowed by a deepening business depression are in prospect.

The problem is clearly one of more appropriate timing and faster buildup of surplus when it appears likely to be needed, that is, of stepping in with prudent measures in anticipation of impending financial difficulties. This

means facing up more intelligently to a variety of economic challenges, including major cyclical fluctuations, rising inflation, and institutional changes. Better forecasts of the key economic indicators that affect investment values are obviously needed, if insurance executives are to react more quickly and knowledgeably to potential threats to solvency.

Even though GAAP was explicitly not intended as an instrument that might be helpful in judging solvency of life companies, its rather uncritical acceptance has beclouded the issue, since a company in financial difficulties may continue to show satisfactory earnings on the GAAP basis. GAAP is slanted in the direction of ascertaining earnings by reference to recent financial experience and tends to take a mechanical view of the obligations due in the distant future. To put it bluntly, the accountant's training does not qualify him to form an opinion of the value of actuarial liabilities that extend far into the future. In the uncertain economic climate that looms ahead of us, a more cautious approach to life insurance liabilities is in order, but the accountant brings to bear his experience in businesses with short-term liabilities. At the very least, GAAP earnings ought to, in my judgment, be adjusted downward for additions to contingency reserves that relate to the principal risk factors likely to affect future life insurance operations.

Ernst and Ernst in their opus on GAAP for stock companies explicitly state that:

"The intent of the life insurance audit guide appears to be to permit recognition in the surplus account of realized and unrealized gains and losses on stocks and realized gains and losses on bonds ..."

No caution is indicated about unrealized losses on bonds or other securities. Contingency reserves for such unrealized potential losses are among the prudent measures that might be taken to guard against threats to the solvency of life insurance companies.

If we focus on the investment risk during business depressions as the chief threat to the solvency of life companies, it may be useful to distinguish between three somewhat different hazards: permanent losses in investment values, violent fluctuations in investment values, and losses arising from the liquidation of investments brought about by a negative cash flow. The first of these - permanent losses in values - needs to be provided for in the basic structure of life insurance. The second - violent fluctuations in values - requires a prompt buildup of surplus or contingency reserves when economic conditions portend a serious downturn. The third - losses arising from liquidation - calls for better management of cash flow and the accumulation of contingency reserves in anticipation of unusually high demands for cash and loan values.

Insofar as permanent investment losses are concerned, studies are needed of the depreciation in different types of investments likely to be experienced under economic conditions such as those which prevailed in the last few years. Inasmuch as estimates of future asset depreciation are necessarily conjectural, a conservative valuation standard which allows for sizable investment losses in the future is clearly advisable. If, as a practical matter, it was deemed advisable to continue recent asset valuation practices, they should be supplemented with appropriate contingency reserves for depreciation in investment values; for instance, a contingency reserve for depreciation in the value of mortgages in certain central cities clearly appears desirable in the light of current demographic trends. Fundamentally, however, provision for permanent investment losses must be made through a margin in premium rates, perhaps by calculating the premiums at a lower interest rate than that assumed for reserves; this margin should not be locked up in the reserves but accumulated as surplus or as a separate contingency reserve for investment losses. To protect the company further against sudden asset depreciation, a suitable contingency reserve for investment fluctuations should also be established. It is well to bear in mind that the inherent recuperative power of the life insurance business will normally enable moderate investment losses to be made good in a relatively short time, but this recuperative power can be greatly enhanced by providing cash and loan values on the minimum basis permitted by law.

The desirability of a contingency reserve for investment fluctuations was highlighted by the erratic course of the financial markets in the last three or four years, when it was demonstrated that the fluctuations in the bond market were about of the same order of magnitude as those in the stock market. A not insignificant proportion of all bonds were reclassified so that they could no longer be valued on an amortized basis. A substantial part of the 1973 and 1974 investment losses reported by many large companies was attributable to their having to value bonds on a market value basis which were previously carried on an amortized basis. Insofar as I can find out, no comprehensive studies have been made of the extent to which different types of bonds were changed from an amortized to a market value basis because of depressed business conditions. I would like to see the Society of Actuaries undertake such a study, to assemble the statistics on the basis of which contingency reserves for investment fluctuations might be set up, with due consideration to the probabilities of extreme fluctuations for different types of securities under different economic circumstances.

An even more pressing and appropriate subject for a study by the Society of Actuaries would be a review of the recent experience with the demand for cash and loan values by age, sex, duration, plan, and amount of insurance. This kind of study might possibly be made as an extension of the inter-company recent issues mortality investigation. We badly need information on changes in the demand for cash and loan values under different

conditions and in response to variations in the key economic indicators. With such data in hand we could go about designing contingency reserves for investment losses due to liquidation of assets arising from a negative cash flow.

Of course, in addition to the manifest threats to solvency stemming from the increased risk of investment losses in the current economic climate, actuaries will have to continue to keep a watchful eye on mortality and disability trends, rising expense levels, and certain types of catastrophe hazards.

The main point remains, nevertheless, that any prudent assessment of the economic climate in the years ahead dictates that the life insurance business gear itself to operate with higher surplus margins than in the recent past. If we do not take much more conservative measures on our own, we can expect an acceleration in the establishment of more and more guaranty funds by regulatory authorities. In 1941 only New York had such a fund; today seventeen states have them with respect to life insurance and bills to establish guaranty funds are pending in three additional states. Of the seventeen guaranty funds now in operation, four were launched in 1972, two in 1973, three in 1974 and three in 1975. If this trend continues, all states may have guaranty funds with respect to life insurance within a decade.

Holding larger funds designated as surplus may be troublesome from a public relation viewpoint, since the word "surplus" is likely to render companies more conspicuous targets for demagogues, tax authorities, and policyholders wanting larger dividends. It would be quite feasible, however, to provide the higher surplus margins needed in the form of contingency reserves for specific purposes, supplemented by unassigned surplus funds for unforeseen contingencies and for financing new ventures. From a legal standpoint the aggregate of the contingency reserves and unassigned surplus would still constitute the company's legal surplus. It would be helpful from the public relations viewpoint if contingency reserves for specific purposes were calculated on the basis of clearly understood assumptions and pertinent experience data. Actuaries can contribute much to formulate the bases of such contingency reserves on scientific lines.

Furthermore, actuaries ought to be in the forefront of those considering preventive actions when events presage financial difficulties.

The search for indices portending such difficulties has led to the development of an early warning system for life and health insurance. This system, developed by an NAIC committee that included a number of actuaries, comprises tests relating to:

- (1) changes in surplus
- (2) ratios of net gain to total income
- (3) ratios of non-admitted to admitted assets
- (4) ratios of real estate to capital and surplus, and
- (5) changes in asset mix.

This early warning system does not, however, initially encompass an intensive review of the quality of various assets held, analysis of cash flow, and evaluation of the bases of reserves and other liabilities. It would appear that these characteristics of a company might well be covered by the initial examination.

An alternative approach to an early warning system could take the form of establishing minimum surplus requirements for both new and existing companies. This would, of course, have the salutary effect of raising the capital and surplus funds required to start a new life insurance company to a level more consonant with current financial conditions.

If the minimum surplus requirements were developed on the basis of a number of objective criteria, such as the quality of different assets, the needs for surplus on different lines of business, and the special contingencies affecting a particular company, a firmer line could be drawn for preventive actions intended to forestall possible insolvency. Such actions could take the form of mandatory curtailment of new business as well as the prohibition or curtailment of dividends to stockholders and policyholders until such time as the minimum surplus was restored. The objective of a minimum surplus requirement would, in effect, be to buy sufficient time to enable the recuperative strength inherent in the life insurance business to come into play and hopefully ward off insolvency.

MR. RICHARD HUMPHRYS: If we are going to discuss the solvency of life insurance companies, perhaps the first thing to do is to try to find out just what that means, or more precisely, to find out what insolvency means. It may seem surprising to a group of actuaries that there has to be any discussion about the definition of insolvency, but when one tries to consider it from a purely legal point of view, many complications arise.

I can, perhaps, illustrate by taking some examples from a proposed new act on bankruptcy that is now under consideration by the Canadian Parliament. Pursuant to this act, which is an effort to revise and update bankruptcy legislation in Canada to bring it into the forefront of this type of legislation, a bankruptcy order can be sought at a court in respect to a debtor who "is insolvent or unable to pay his debts". The proposed legislation goes on to state that for purposes of the act, a person is insolvent when the property of that person, if it were realized at a fair valuation, would be insufficient to pay all the certain and liquidated debts of that

person, whether or not the debts are due. Think of that definition for a moment in relation to a life insurance company. First, "realize all the property at a fair valuation". If we are talking about realizing, then presumably the market value would be considered to be a fair valuation. It would be difficult to suggest any other value that would be appropriate in the circumstances. This does not present too many conceptual problems since, for a life insurance company, we are more or less accustomed to looking at the market value of assets at least for some purposes. It has to be recognized, of course, that market value as illustrated by a trade in the market may be something quite different from the realizable value of a large portfolio.

In any case, this reference to realizable value suggests that, if values other than market values are used in presenting financial statements, we had better be pretty sure that we are dealing with a going concern.

But difficult as may be the problem of arriving at a fair valuation of the assets, the other factor in the insolvency definition, that is, the amount required to pay all the "certain and liquidated debts" of the company "whether or not the debts are due", poses even greater problems. How can one determine the amount of "certain and liquidated" debts in relation to life insurance policies where one does not know when the amount is going to fall due for payment or, in the case of life annuity, what the total amount of payments will be. True, actuarial techniques permit one to estimate the total obligation of a company with respect to a portfolio of business, but that is not exactly regarded as determining the value of a fixed debt to a creditor.

In fact, it is not at all certain that a policyholder would be regarded as a creditor in the absence of legislation so specifying, assuming he had not demanded a cash surrender value.

While an actuary might be quite convinced in his own mind that the realizable value of the assets of the company is not sufficient to pay all the debts of the company as they will fall due - or even the present values - you can imagine the difficulty in proving this situation before a court in order to get a bankruptcy order.

This "insolvency" test, then, scarcely seems workable with respect to a life insurance company.

The alternative part of the bankruptcy test is the state of being unable to pay one's debts as they fall due. It would be rare indeed to find a life insurance company in this position. True, there might well be problems of cash flow should a heavy demand for cash values or loan values arise or should a serious mismatch of maturities occur, but, usually, a company

could liquidate assets to meet cash demands. The possibility that forced liquidation might cause losses so heavy as to result in insolvency is the main danger. But from a strict application of the test, a life insurance company could be far gone on the insolvency road in any actuarial sense before it is caught in a position where it is literally unable to find cash to meet claims.

As a consequence of these difficulties and the necessity of having the means of acting when it becomes reasonably clear to actuaries, if not to others, that a company is not in a position to meet all its obligations as they fall due without deduction or abatement, a special definition is needed, in relation to insurance companies, that will permit action to be taken when the public interest and the interest of the policyholders are clearly threatened by continuation of a company in business. In recognition of this, the legislation I have referred to proposes that, in the case of insurance companies, a company will be "deemed to have ceased to pay its debts generally as they become due" (and thus be subject to bankruptcy proceedings) where the licence or certificate of registry of the company granted by the appropriate authority has been cancelled for the following reasons:

- (a) he considers that the assets of the company are insufficient to justify a continuation of business by the company;
- (b) he considers that it is unsafe for the public to effect insurance with the company; or
- (c) the company is deemed to be insolvent under any other legislation.

Item (c) of this definition refers principally to the insurance legislation where in certain circumstances a company is deemed to be insolvent regardless of its financial position - as, for example, if it refuses to file a financial statement.

Apart from this, the definition sets up tests that are to a large extent subjective. The judgment of the supervisory authority is the key factor. If the supervisory authority considers that a company's assets are insufficient or that it is unsafe for the public to insure in the company, then presumably he will act to cancel its licence and this permits approach to a court for bankruptcy proceedings. If he does not, it is virtually impossible for anyone else to force action.

All this may seem pretty alarming at first glance and rather inhibiting for the supervisory authority. Some may think that, since the cancellation of the licence for the reasons cited opens the way for bankruptcy proceedings, it is a remedy that is so severe as to cause the postponement of action. Supervisory authorities may delay, unduly, action to cancel a licence if

they wish to avoid precipitating a bankruptcy where they think (or hope) that the company may be rehabilitated. In order to eliminate or minimize inhibitions of this type, the proposed legislation that I have mentioned would require that any petition in bankruptcy be served upon the relevant superintendent of insurance as well as delivered to the court. The proceedings can be stayed for up to 60 days in order to give the Superintendent time to intervene in the petition. The implication of this is that, if it appears likely that rehabilitation is possible, bankruptcy action can be suspended until these possibilities have been explored.

This is an important point since effort at rehabilitation or negotiation for a takeover can be rendered difficult and sometimes impossible where a jumpy creditor may precipitate bankruptcy action. The institution of bankruptcy proceedings can well destroy the asset or a significant part of the asset represented by a company as a going-concern. It is one thing to negotiate for a takeover of a company that is in trouble but is still a going-concern and another thing to negotiate for the takeover of a portfolio of business where a bankruptcy order has been issued.

I think it is important, therefore, that the supervisory authority receive notice of any impending bankruptcy proceedings and have authority to intervene so that other negotiations will not necessarily be rendered impossible.

So what it comes down to in practical terms is that a life insurance company is exposed to bankruptcy proceedings when the supervisor cancels or withdraws its licence because he doubts that the company has enough assets to justify its continuation in business or that it is unsafe for the public to effect insurance with the company. And the great problem for the supervisor is when to come to this decision. And the fact that it is virtually impossible for a policyholder to act in the absence of cancellation of a company's licence puts additional responsibility on the supervisor. Too long delay permits current claimants to get 100¢ on the dollar while later claimants may get only a fraction; too hasty action may destroy chances for a takeover as a going-concern.

I should say, at this point, that the public bankruptcy route is not the exclusive route under Canadian law for taking some kind of regulatory control where a life insurance company gets into serious financial trouble. The federal legislation in Canada provides a series of steps short of bankruptcy where problems arise.

The Superintendent of Insurance is required to report to the Minister of Finance in any case where he is of the opinion that the assets of a company are less than its liabilities, as computed for purposes of the federal statement. He is also required to report if the assets of a company in Canada are less than its liabilities in Canada and, also, if he thinks that the assets are not sufficient, having regard for all the circumstances, to give adequate protection to the policyholders.

The Minister, on receipt of a report from the Superintendent, is required to give the company a chance to be heard and then he may take one or more of the following actions. He may make the company's certificate subject to limitation; he may prescribe a time within which the company is to make good any deficiency of assets; or he may direct the Superintendent to take control of the company's assets. If the latter step is taken, it is then open to the Minister to apply to a court for an order directing the Superintendent to take control of the company for rehabilitation, or for liquidation. Thus in some circumstances, the supervisory authority can seek a bankruptcy order even where a licence has not been cancelled. This is also very important. It is not enough merely to cancel the licence and wait for a creditor to take action; it is necessary that the supervisory authority be able to take the initiative.

If the Superintendent has control of a company for its rehabilitation, he may appoint a committee from other companies to advise him. If he succeeds in rehabilitating the company, he can turn it back to the shareholders (or policyholders), or if he becomes convinced that rehabilitation is impossible, the Minister can apply to a court for a liquidation order.

Expenses incurred by the Superintendent in the course of any efforts at rehabilitation and expenses arising from liquidation may be assessed against other companies if the Superintendent acts as the liquidator.

There is accordingly a series of steps that can be taken in an effort to save a company before turning to liquidation proceedings. Even if liquidation proceedings are resorted to in the end, there is authority to assess other companies for the expenses of liquidation. This is an important point since the expenses of liquidation are often one of the great unrecognized liabilities on the balance sheet of a company. If the company is small, the expenses of liquidation may loom very large in proportion to other liabilities.

If you have followed me through this maze, you will note that, even if a company shows a net deficit on its balance sheet, that is, reported assets less than reported liabilities, it does not follow that a policyholder or a creditor can take bankruptcy action. However, the supervisory authority could, through the steps of the Superintendent reporting to the Minister, the Minister requiring the Superintendent to take control of the company's assets, and then seeking a court order to liquidate the company. The liquidator would not, of course, be bound to distribute the assets; he would, instead, look first for a reinsurer. He might, in fact, run the business off, but this last would be unlikely.

But under our legislation, the supervisory authority plays a key role and has virtually exclusive control over liquidation proceedings.

The problem facing the supervisor and, of course, the court, if a bankruptcy petition is submitted, is to decide whether the assets of the company, together with investment income and future premiums, will produce sufficient cash flow in the future to enable the company to meet its obligations as they fall due and to meet its expenses of operation. And so we have the two great obvious problems: what are the present assets going to yield by way of income and maturity value (or sale price, in the case of equities) on the one hand, and how much is going to be needed to meet future obligations and when will it be needed? These are all matters that involve subjective judgment on somebody's part and, consequently, some margin is needed over and above a bedrock estimate just to guard against bad judgment or the arrival of unexpected circumstances.

We can build in or require these margins by overvaluing the liabilities, by undervaluing the assets, or, more directly, by simply requiring that companies have some assets over and above the amount that it is otherwise expected to need, in other words, capital, contingency reserves and surplus.

The trouble with built-in margins is that they are not available to meet pressures arising from unexpected short-term events. The margins would emerge on a runoff and may perhaps be recognized in negotiations where bulk reinsurance is effected, but otherwise they emerge only gradually as policies and assets mature. Surplus and contingency reserves on the other hand provide the cushion necessary to meet sudden shocks. While the life insurance business is not a volatile affair, we cannot close our eyes to the possibility of sharp changes in circumstances - rise in cash demands, inflating costs of operation, epidemics, natural disasters, and economic setbacks leading to investment losses.

However, it is to be recognized that margins that are too visible invite pressure for pay-out as dividends and thus they may vanish under shareholder or policyholder pressure.

On the Canadian scene, we have not, in our statutory requirements, built in very much by way of margin on the liability side, i.e., in the estimate of what the company will need to meet its obligations in the future. The actuary performing the valuation is given a wide range of choice of mortality tables. Where an actuary wishes to use a table that is not on the list, he may apply for special approval and generally this is forthcoming if the proposed table has any respectable degree of validity. On interest rates, the statute sets a maximum of 4% for annuities and 3½% for insurance, but higher rates can be approved by the supervisory authority on application. Generally, the practice has been to approve higher rates if a company can justify the rate requested on the basis of actual performance of investments. We have, however, tended to use a stop-rate approach, i.e., cut to 4% in 15 years.

I may say, in passing, that I think some serious problems are being raised in this area related to the matching of specific assets to specific liabilities. Intense competition exists in Canada in the marketing of life annuities and there has been a tendency to price these using very high rates of interest. Valuation rates have risen in a corresponding fashion, to the point where they can be justified only on the basis of implicitly earmarking certain assets for the liabilities in question. I believe that this trend will perhaps lead to explicit earmarking at some point in the future - a practice that has already been adopted administratively on some occasions as a condition to the use of a high valuation rate.

Perhaps the main place where there is some margin built in to the estimate of liabilities is the requirement that the reserves be at least equal to the cash surrender values and that the reserves be supported by the opinion of a qualified actuary to the effect that they make good and sufficient provision for the obligations in question. It is also provided that the method used to determine the reserves must not produce reserves lower than the modified reserves calculated as specified in the Act. This is a modification that provides a relatively modest initial expense allowance.

The requirement of a cash value floor removes the uncertainty that would exist if lower reserves were used, accompanied by the use of withdrawal rates, and the requirement for an actuary's certificate has the tendency, I think, to develop reserves that are on the high side rather than the low side.

It seems to me, therefore, that by reason of the cash value floor, the limitation on the initial expense allowance under a modified reserving system, and the requirement of a certificate by the actuary, we can feel some confidence that the liability side of the equation will have some margins in it. But these are very difficult to quantify.

The main uncertainty is the valuation interest rate and, even here, in this day and age with valuations being made at 3 and $3\frac{1}{2}\%$ against net portfolio earnings of over 7%, there is significant margin. There is considerably less in the annuity field where valuation rates have gone up and often even exceed the portfolio rate on the assets. The net level premium method is still widely in use as well.

We place great reliance on the actuary's certificate. We have used it for nearly 50 years and I know of no case where we have had reason to conclude that the life insurance reserves were not adequately determined.

On the asset side, there are some margins built in but not very much. Government bonds and mortgages are reflected in the financial statements at their amortized values and all other assets at what I might call a

modified market value. This is the book value of the assets in question, less an investment valuation reserve equal to the smaller of the current market value deficiency or the average of the market value deficiencies for the current year and the two preceding years. Under such a rule, any drop in market values is in effect absorbed in three annual steps, rather than taken all at once. The non-amortizable bonds (municipal and corporate bonds), together with stocks and real estate, constitute a little over 40% of the assets of Canadian life insurance companies.

The effect of this approach to the valuation of assets is to establish a kind of contingency reserve against the asset portfolio, related to the market deficiency on corporate and municipal bonds and on stocks and real estate.

This produces some margin if the market is down, but it is somewhat capricious since its effect varies from company to company, depending upon the mix of assets, and may be unreasonably severe at times when there is a sudden drop in the market.

The problem with reserves of this type is that they are only partly available when needed (short of complete liquidation). If there is some forced liquidation of assets, the reserve will cushion the strain on surplus if the assets sold are amongst those giving rise to the reserve. However, if a government bond is sold, the loss will not be absorbed by the market value reserve against other assets.

It is clear from this comment that there are no very large margins built in as respects the valuation of assets. Even the market value deficiency reserve does not force the retention of significant asset margins on a continuing or regular basis. They force some additional assets to be on hand at a time when the market is falling, but not otherwise.

We have been working hard on the question of valuation of assets, because our system does not seem to be wholly satisfactory. This is bound up with the treatment of investment income and capital gains and losses in the income accounts, but it is also relevant to the solvency question. I believe that we should devise some type of investment valuation reserve that ensures some margin of assets to take care of the problem of loss on forced liquidation. It seems reasonable enough to carry the assets generally on the balance sheet at a value that is related to the original purchase price and yield at purchase in the case of equities, but one always has to be conscious of the problems thrown up by mismatching of maturities of assets and claims, whether due to bad judgment or to unexpected demands for policy loans or cash surrender values.

It has not seemed to us that the U.S. method, using amortized values for all redeemable securities and market for everything else, less a mandatory securities valuation reserve, is the answer. Neither is the British system - market value for everything - any more appealing.

We are inclined to stress the going-concern approach rather than the liquidation approach, thus leading to the general expectation of holding redeemable securities and mortgages to normal maturity, and having some discretion in the timing of sales of equity items.

We have fortunately had very few failures of life insurance companies on the Canadian scene, and none of these have involved an outright distribution of assets. The realizable value, in the short run, then seems academic. What is important is the value that will be placed on the asset portfolio by a company that takes over the assets and liabilities of the defunct company. It has been traditional to look at market values, not always accompanied by a revaluation of the liabilities to an interest rate consistent with the current market value of the portfolio. This tends to push one to a straight market basis where a company is in trouble. It may perhaps be reasonable to contemplate a takeover with the assets being accepted above the market so long as the yield rate in relation to the accepted value is sufficient to support the valuation rate assumed for the liabilities. But the danger of heavy withdrawals must be recognized and this forces one back to market values.

The fact that the bankruptcy of a life insurance company is not likely to lead to a division of the assets amongst the creditors, but rather to the transfer of the policies to another company (with or without an adjustment to the contracts), is a fact of major importance and one that puts life insurance companies in a special category as respects bankruptcy and insolvency.

On the question of capital losses due to failure of the creditors, experience in the Canadian scene has been that such losses are small. At the present time, life insurance companies are allowed a "bad debt" reserve of $1\frac{1}{2}\%$ of the book value of bonds and mortgages for income tax purposes. No company has had losses of anything like that amount.

I do not think that this justifies any complacency. One only has to look at what happened to a number of banks in relation to REIT's. But I think we can take some comfort from the fact that it was the banks and not the life insurance companies that got stung. And that, in turn, is related to the statutory investment prescriptions.

Concerning other margins, i.e., outright requirements for assets in addition to those estimated to be sufficient to cover the liabilities, we have no

statutory requirements applicable to life insurance companies. It is generally understood, however, and generally accepted that companies will have to have capital and surplus to continue in operation. The general picture in Canada, at the end of 1975, taking all Canadian companies together, showed capital, surplus and contingency reserves amounting to about $7\frac{1}{2}\%$ of liabilities apart from any provision for market value deficiencies of assets. Taking the reserve for market values into account, the margin was about 10%. In addition, net level premium reserves still remain common among the mature companies.

In considering the question of surplus margins, of course, it is important to remember that in a life insurance company, things do not happen overnight; a company has a great momentum. It is hard to turn a life insurance company around and it takes quite a while to establish whether in fact a turn has taken place and to judge the effect of any major change in policy. In this context, surplus and contingency reserves give the important gift of time. They cannot save a bad situation but they can give time to management to correct a trend that is disaster bound without forcing the supervisory authority to take drastic action on the grounds of inadequate assets.

In life insurance, of course, having in mind the investment in new business, a company could, by cutting off new business, often generate significant surplus but this would be in the context of effective termination of the company. Cutting off new business would result in a loss of agency force and the savings, if they are to be maximized, would have also to involve the termination of the whole new business activity of the company; thus one can look at this possibility as a sort of runoff situation but, clearly, the inherent margins of this type cannot be counted upon in relation to any going-concern approach to the company. Furthermore, very high lapse and surrender rates can be contemplated on such a runoff.

It can be said, interestingly enough, that excessively large amounts of capital, surplus and contingency reserves may sometime represent a danger rather than a comfort. I have seen cases where corrective action was long delayed, where management and supervisors were lulled by the safety given by very large amounts of capital and surplus. Only when these were largely dissipated did the necessary action take place. And, as I have mentioned, it is not easy to turn a life insurance company around.

All of the above discussion leaves one with the general impression that there is very little in the way of statutory requirements relative to capital and surplus margins in the Canadian scene. Generally speaking, the industry remains strong, although there are, of course, wide variations across the whole gamut of companies. I am afraid, however, that we are on a trend that will see inherent margins reduced in the future. Valuation bases are gradually being weakened in the sense that the interest rates

used are getting larger. Pressure for cost disclosure will tend to reduce premium margins and increase dividend pay-out. The current preoccupation with GAAP has the tendency to reduce the built-in margins and may lead to less use of the net level reserves. At the same time, the volume of business is growing and the range of uncertainty seems to increase.

Questions are raised concerning the possible liquidity pressure by reason of heavy demands for cash surrender values and for policy loans. Uncertainty concerning future interest rates seems to be greater.

It seems as though we are living through a time that calls for greater financial strength rather than less but, at the same time, we are experiencing, in Canada at least, much more intensive competition among financial institutions for the savings dollar and a steady trend in the banking and trust company field towards smaller margins of capital and surplus. The consequence of this type of trend has been, in some countries and in some industries, a search for some substitute for this kind of safety margins.

In the deposit-taking fields - savings banking - both in Canada and in the United States, this has been sought through the introduction of a program of deposit insurance. This adds to the protection of depositors through a kind of pooling of contributions of deposit-taking institutions, thus substituting in some sense for the traditional role of capital and surplus. In the insurance field, a number of countries have moved in the direction of guarantee funds. These are widespread in the United States already, as you know; Great Britain is moving in this direction, and I think that similar plans exist in certain other countries.

In Canada, we have so far steered away from industry guarantee funds in the insurance area. We have fortunately had good experience with our insurance companies. Losses to policyholders have been rare indeed. We did in the federal legislation, as I mentioned earlier, bring in a provision that enables expenses of liquidation to be assessed against other companies, thus removing one of the unrecognized liabilities from the balance sheet of a weak or defunct company. We also have the authority to assess against other companies the expenses of rehabilitation management.

Guarantee funds have a strong political appeal, of course, just as deposit insurance has, since it offers what seems to be absolute protection to the policyholders. The objections are well known and I think the principal one is that such funds tend to weaken the resolve for good management. Well-run companies find themselves assessed for the deficiencies of poorly-managed companies and one wonders what the advantage is for good management. Clearly, the public does not draw much distinction between a well-managed, soundly-financed company and any other licensed or registered company. In some respects, one could conclude that the supervisors had done their work

too well. The public has been led to believe that all insurance companies are equally reliable. Since this is not so and never has been so, the concept of guarantee funds comes forward to make it so.

It has always been difficult to assess the implication in the public mind of governmental supervision and licensing of insurance companies. While there is no legal guarantee, the public seems to feel generally that since a governmental agency licenses a company, it must be safe - and if it is not, then the government is responsible.

We had one recent experience of interest in this connection. A small company got into serious difficulty through excessive expenses and expansion. Its assets were deficient and it was closed. A group of other companies were ready to take over the liabilities to policyholders and absorb any related losses but they would not guarantee other creditors. The provincial government then stepped in to liquidate the company and guarantee all the liabilities. This was a move of great significance and marks the first time that a government has voluntarily undertaken a liability of this type.

We are in Canada still clinging to the concept of individual company responsibility accompanied by what is, I hope, alert supervision. I prefer to avoid fixed ratios and rules so far as possible since these operate to the disadvantage of policyholders of well-run companies.

Such standards have to be placed at a level that is safe for everybody, which means that they are probably unduly restrictive for the well-managed companies. We are moving in the direction of placing more responsibility on the actuary of the company in the assessment of liabilities and in the recognition of assets. I realize, however, that, should trouble come and should we have a failure with loss to the policyholders, it would be virtually impossible to resist the institution of a guarantee fund or guarantee plan of some kind. Having already gone this route in relation to savings deposits, it would be hard to maintain any resistance to a similar idea in relation to insurance.

MR. RONALD S. SKERMAN: The financial standards for life offices in the United Kingdom which are expected to be defined by Regulations under the Insurance Companies Act, 1974, have been influenced by the nature of the life assurance contracts which have been issued. Traditional whole life and endowment assurances differ in an important respect from those issued in North America and in many other countries in that surrender values are not normally guaranteed. They are, therefore, primarily contracts to pay a sum of money, in most cases including a share in profits, on survival of a term of years or on earlier death. If the assured surrenders the contract before the sum assured becomes payable the insurer can calculate the

surrender value so as largely to protect itself from loss and, in particular, so as to avoid any threat to its solvency from a depreciation of its assets whether arising from an increase in the market rate of interest or from any other reason. Although in practice insurers do not often make changes in their surrender values, reductions have been made over the last year or so, and the freedom to make changes has important consequences on the relationship between the values of assets and actuarial liabilities. Paid-up policy values are sometimes guaranteed but this does not have such a potentially large effect on the length of term of the contracts.

The essence of the financial operations of a life office is that it receives premiums, income from investments both by way of interest and capital, and other items of income, and undertakes liabilities to pay claims, expenses, and other items of outgo. It is not possible to assess the financial strength of an office by reference to a series of payments of income and outgo and, in order to arrive at a standard which can be used in practice, it is necessary to compress the net payments into a present value, using an appropriate rate of interest, which need not be constant over the period for which the payments continue. This concept can be interpreted as a comparison between the value of the assets and the liabilities subject to the important proviso that an appropriate relationship must exist between the rate of interest implicit in the valuation of the assets and that used in valuing the liabilities. Without such a relationship the results of a valuation have no clear meaning and can, in practice, be seriously misleading.

Basically, therefore, the financial standard envisaged for life offices in the United Kingdom ensures that a margin exists between the value of the assets and the value of the liabilities, and that the interest bases used in the calculation of these values are consistent. I say that the standard is envisaged because, although the regulations regarding the valuation of the assets are in force, those governing the valuation of the actuarial liabilities are still in draft form. The main considerations in choosing a statutory standard of financial strength are, I suggest:

1. that it can be applied in practice without undue difficulty or delay,
2. that it can be defined clearly in regulations and that it does not involve the statutory authority in the use of a large measure of discretion in judging whether an insurer satisfies it,
3. that, if an office can satisfy it at regular intervals in the varying conditions which apply from time to time, there is a very high probability that the office will be able to fulfil its obligations and that it is likely that it will be able to meet the reasonable expectations of its policyholders as regards benefits arising from their entitlement to share in profits.

4. that, if an office fails to satisfy it on any occasion, there will be ample time for the supervisory authority to make further enquiries into its financial position and to ensure that any necessary remedial action is taken before the point is reached at which it is unable to meet its obligations.

In order to make a realistic assessment of the values of the assets and liabilities of an insurer it is necessary to discount future payments and receipts and this inevitably involves subjective judgment. For example, it is necessary to estimate future income from investments in equity shares and property and to estimate future payments under contracts in respect of profits and surrender values. It is also necessary to choose consistent rates of interest on which to base the valuations of assets and liabilities. A statutory basis could not permit subjective judgment on those and other items because this would place an unacceptable degree of discretion on the supervisory authorities in deciding whether the financial standard had been achieved.

As a practical solution the financial standard envisaged in the United Kingdom is that assets valued broadly on a market value basis must exceed liabilities including actuarial liabilities calculated according to the following principles:

1. A net premium method of valuation or a method of producing reserves at least as strong should be used.

If the purpose of the financial standard was limited to ensuring the fulfillment of contractual liabilities it would be appropriate to use a gross premium method of valuation (i.e., one under which the net liability is the value of the sums assured plus any existing reversionary bonuses less the value of the office premiums payable reduced by an appropriate allowance for expenses). The feeling has grown in recent years that the interests of policyholders are not necessarily adequately protected by a demonstration of solvency on this basis. Considerably greater premiums are paid under participating policies than are likely to be required to provide the basic sum assured. If a gross premium method of valuation were used without taking into account any liability for future distributions of profits to policyholders this would mean that the margin included in premiums to be received in the future would be capitalized to reduce liabilities. An insurer just satisfying this test of solvency should be able to pay the sum assured and any bonuses declared when the valuation was made but would not be able to meet the reasonable expectations of its policyholders because it would have little or no prospect of

producing profits for its policyholders in the future. The requirement to use a net premium method of valuation defines a standard of good conduct rather than a standard of solvency. It prevents margins in future premiums being capitalized to reduce actuarial liabilities.

2. The net premium method may be modified to make partial allowance for new business expenses.

It is envisaged that a Zillmer allowance rate not exceeding 3% of the sum assured may be used.

3. The valuation must make adequate provision for future renewal expenses.

This provision would be satisfied if the value of the office premiums exceeds the value of the net premiums by an amount which will be sufficient to meet future expenses calculated on the basis of the current rate of renewal expenses with appropriate allowance for inflation in the future. The provision is particularly relevant where the valuation is at a low rate of interest and where, therefore, the net premiums are high. If the value of the net premiums exceeds the value of the gross premiums less provision for expenses, a gross premium valuation must be used. Thus the combination of the requirement of a net premium basis in 1 above and this requirement amounts to a requirement to use a net premium or a gross premium valuation, whichever produces the larger liability.

4. Appropriate recognized tables of mortality should be used.

The effect of the mortality basis used in the valuation on net premium reserves for endowment assurances is not very great and heavier mortality rates do not necessarily produce large reserves. Mortality assumptions have a large effect on the reserves for whole life assurances but the choice of mortality basis is not usually an important factor in influencing the level of reserves.

5. The rate of interest used should be lower than that implicit in the valuation of the assets by at least 10 percent of that yield or 0.8 percent, if greater, together with such further margin as the actuary considers necessary to allow for the possibility of a reduction in the future in the yield on new investments.

During the last twenty-five years there has been much

discussion in the United Kingdom on how a life insurer can invest so that the financial position of its existing business is unaffected by changes in interest rates in the future. In his paper "Review of the Principles of Life Office Valuation" in JIA 78 p.286, F. M. Redington describes how the length of term of the assets of an insurer can be chosen so that if the assets and liabilities are reduced using the same rate of interest, the value of the assets and of the liabilities will change by the same amount as the interest rate changes. There is no obligation on an insurer so to match its assets and liabilities by length of term, but in the statutory return the actuary has to state what regard he has had to the nature and term of the assets when choosing the actuarial valuation bases.

6. The requirement as regards the rate of interest thus recognizes that in the absence of guaranteed surrender values the actuarial value of the liabilities and the value of the assets move in sympathy as interest rates change. They lay emphasis on the relationship between the interest rate implicit in the valuation of the assets and that used to value the liabilities rather than the rates themselves. The level of the rate is determined by the rate implicit in the valuation of the assets. It is not suggested that this is necessarily the best rate at which to value them but the requirement to use this rate eliminates subjective judgment and imposes a searching test on the finances of an insurer by making it necessary for the test to be satisfied at whatever market rate of interest may be earned on the assets on the valuation date.
7. The reserves must be sufficient to meet the liability resulting from the exercise of options under contracts.

The most common options involved here are the option to surrender or make the contract paid up but the rule is of general application. Discussion continues as to whether this rule should be applied to contracts individually or in aggregate. The view of the profession is that an individual test is, in principle, unjustified although there may be unusual circumstances in which it would be appropriate.

8. For special types of contracts, the rules may be modified in an appropriate manner consistent with them.

This rule is necessary to deal with the various types of investment-linked contracts and other special contracts.

The proposed rules have given rise to much discussion within the profession, particularly in the light of the very high rates of interest which prevailed at the end of 1974. A research group was set up to consider problems arising from the proposed rules and a paper was presented by the group to both the Faculty and the Institute early in 1975. Two main problems were identified:

First, the net premium method of valuation is unrealistic because, as the rate of interest used in the valuation increases, the premium valued reduces by more than is appropriate. Thus, if a net premium valuation and a gross premium valuation produce the same reserves at the normal rate of interest, the net premium method will produce higher reserves at higher rates of interest. A high rate of inflation such as influenced the recent high rates of interest calls for an increased allowance for future expenses in an actuarial valuation and therefore for a reduction in the premium valued, but the reduction arising from an increase in the rate of interest in a net premium valuation is likely to be more than is necessary to allow for these higher expenses.

Figures produced in the paper presented by the research group showed that reductions in the net liability under a net premium valuation when interest rates reach very high levels are in many cases as great as, or greater than, reductions in the value of assets even if assets were invested in irredeemable securities. The following illustrates the position, taking the value of assets and liabilities as 1,000 at a 3% rate of interest:

Rate of interest	3%	6%	8%	10%	12%	16%	20%
Value of irredeemable	1,000	500	375	300	250	188	150
5 $\overset{v}{\underset{30}{}}$	1,000	546	370	257	183	102	63
15 $\overset{v}{\underset{30}{}}$	1,000	627	464	350	270	173	120

For a young and expanding business which is the normal situation in a time of rapid inflation the net premium method would not therefore create problems at high rates of interest even if assets were invested in irredeemable securities. For a more mature business the net premium method would become more stringent the shorter the term to run but the position would be eased if, as would normally be thought appropriate, assets were invested for a shorter term for such business. The explanation for these relative changes in the value of assets

and net premium reserves is that as interest rates rise the mean term of the asset income (using Redington's terminology in the paper to which I referred) reduces more rapidly than the mean term of the liability outgo. At the same time difficulties could arise at very high rates of interest if it were felt necessary to make allowance in the valuation for a marked reduction in the interest rate on new investments.

The second problem was how best to allow in the actuarial valuation for a reduction in the future in the rate of interest. First, it should be mentioned that the rule should be extended to deal with the possibility of a rise in interest rates having an adverse effect on an office's finances which can arise if its assets are invested for a longer term than its liabilities (e.g., if it has very generous guaranteed surrender values). In order to arrive at a solution to this problem it is necessary to distinguish between the rate of interest earned on the existing assets and that earned on new investments and to take account of the length of term of the existing assets because that will determine for how long the yield thereon will be obtained. I would propose the following solution. If g is the rate of interest earned on the existing investments and i the rate expected to be earned on new investments in the future, the starting point (before taking into account the margin in the rate of interest required by the rule) should be the valuation liability at rate i . This should be reduced by the value for the term of the assets of the excess interest of $(g - i)$ if g exceeds i or increased by the value of the deficiency in interest of $(i - g)$ if i exceeds g . The choice of the rate of interest on new investments to be assumed could be left to the discretion of the actuary, it being understood that if the term of the assets were less than that of the liabilities, an assumption that i exceeded g would not normally be accepted, and vice versa when the term of the assets was greater than that of the liabilities. It may be, however, that the supervisory authority will give guidance as to the maximum rate.

An approach such as I have outlined need not mean that in practice liabilities would be calculated in that manner. The method could be used to determine a rate of interest which could be used in a net premium valuation to obtain the desired level of reserves.

It may be helpful to comment on the consequences of the proposed rules for an office invested heavily in equity shares and property. If, as at present, the yield on these assets based on market values is less than the yield on fixed interest securities the proposed rules would mean that the office would have to use a lower interest rate in its valuation than if it had invested wholly in fixed-interest securities. In other words, the actuarial valuation basis could not take any account of the growth prospects of income from these assets and this does not seem unreasonable. The experience of 1974 illustrated that changes in market values can rise which would create problems under the proposed rules for offices heavily invested in equities and properties. Over the year the yield on long-term Government securities increased from some 12% to some 17% while the reverse yield gap on equities remained about the same at some 7%. Depreciation on equities was then from a yield basis of some 5% to some 10% and, in proportion to market values at the beginning of the year, this was considerably greater than the depreciation of fixed-interest securities. The property market in the United Kingdom became very uncertain towards the end of 1974 and what I have said about equities applies in principle also to properties.

Having indicated the principles on which it is expected assets and liabilities will have to be valued in the United Kingdom for statutory purposes it may well be asked what the results represent. I must say immediately that I do not think that they represent any clear theoretical concept. They rather reflect a subjective judgment that a modified net premium valuation with a margin in the rate of interest provides a reasonable advance warning system for the supervisory authorities. The margin in the rate of interest seems reasonable as a provision for contingencies because it represents a relatively high proportionate addition to reserves for a young and immature office. The use of risk theory to determine the level of reserves for an early warning system in the United Kingdom has never been thought likely to yield useful results. The rules do not themselves provide a measure of the surplus funds of an office but they should ensure that these surplus funds are sufficient in practice.

The rules would not provide a guide to fair bonuses in all circumstances. For example, had they applied at the end of 1974, a high rate of interest could have been used in the actuarial valuation. The reduction in the net premiums have produced a considerable increase in loading surplus exceeding for an immature fund the reduction in interest surplus and a considerable reduction in the cost of declaring a given rate of reversionary bonus. In an inflationary situation most

funds are immature and for such funds, if the surplus on the 1974 valuation basis had been distributed in full, bonus rates could have been materially increased but to levels which could not be maintained if interest rates returned to more normal levels. Thus the new rules concentrate on ensuring adequate financial strength when interest rates fluctuate considerably. A valuation on a more passive basis is necessary in order to determine a fair distribution of profits.

Legislation in the United Kingdom gives the supervisory authority power to intervene in the affairs of an insurer when the advance warning system operates (i.e., when the value of the liabilities of an office calculated in accordance with the rules exceeds the value of its assets). The legislation recognizes that the rules would not be appropriate to all the situations in which an insurer could find itself and it enables the rules to be modified where this is justified by the particular circumstances of an office.

The early warning system would indicate that there is a risk that the insurer will be unable to meet its obligations or to fulfil the reasonable expectations of its policyholders. Where the authorities consider that such a risk exists, they have power to impose any of the following requirements on a life office:

1. not to issue new business or to limit new business premium income,
2. not to make investments of a specified description and to realize investments of a specified description,
3. to maintain assets in the United Kingdom equal in value to the whole or a specified portion of its U.K. liabilities and to deposit with a trustee the whole or a specified portion of these assets,
4. to provide the results of an actuarial investigation of its financial position at a date other than that on which it would normally be required,
5. to accelerate the provision of returns required by the legislation by not more than three months,
6. to provide information about specified matters.

In addition the power exists under the Insurance Companies Act for an insolvent insurer (i.e., one where the value of its liabilities exceeds the value of its assets) to be wound up. It provides that life business shall be carried on subject to an appropriate reduction in benefits, but this provision will not come into effect until appropriate Regulations under the Act are made.

If remedial action is to be taken by means of the powers available, it is essential that the early warning system should operate so as to provide as much time as possible. Details have still to be worked out but it is envisaged that quarterly returns will be required from insurers so as to monitor various aspects of the development of the insurers' business. A certificate from the actuary is likely to be required each quarter to the effect that he is satisfied that, if a valuation of the assets and liabilities in accordance with the rules were carried out, the value of the assets would exceed that of the liabilities.

The new rules are not likely to have much effect on the standard of reserving of the well-established strong offices. The experience of 1974 has, however, indicated to all insurers the need for strong reserves if the new rules are to be complied with when violent changes occur in rates of interest and asset values. The rules will make it necessary for some of the weaker offices to improve their financial standards. In some important respects they introduce clear requirements to replace the discretion of the actuary, which it was not always easy for the supervisory authority to challenge.

I do not think that I should conclude without attempting a comparison between the United Kingdom system and that used in most other countries. I have said that it cannot be claimed that market values are the right values to place on them in the financial investigation of a life office. But does any better basis exist? It does not seem to me that either book values or cost prices are better. Both are affected by the dates on which assets were purchased and exchanged and both disregard market developments since that time. A combination of amortized values for fixed-interest securities and market values for others seems inconsistent in principle because it combines market values, which are influenced by rates of interest on the valuation date, for some assets with values dependent on rates of interest on the dates of purchase for others. The element which is particularly important in the United Kingdom system is the relationship between the rate of interest in valuation bases for assets and liabilities. The actuary knows in advance what valuation basis will be permissible for his liabilities if the market rate of interest changes and if therefore market values change. He can assess broadly the surplus funds he should hold to deal with changes in experience. This relationship is not defined in the rules in most other countries. If interest levels change, the actuary can expect minimum actuarial valuation bases to change - more readily for new business than for existing business. No rules exist defining the extent of the changes which will be made, however, and forward planning becomes more difficult.

Having outlined the likely shape of our legislation and the philosophy underlying it, you may be interested in a few comments on recent developments in the United Kingdom market. You are no doubt aware that in the past two years there have been a few failures of life offices in the United Kingdom. These failures did not arise in offices writing largely traditional participating annual premium business. The offices which failed concentrated on contracts designed to give a high return on the investment lump sums because of the basis on which life offices are taxed. These contracts were usually nonparticipating with guaranteed surrender values. They were issued when interest rates were historically high and inadequate precautions were taken against the possibility that rates would rise still higher which, in fact, they did. When this happened it was possible to surrender the contracts and reenter on better terms but depreciated assets were insufficient to cover the guaranteed surrender values. Another feature was the failure of some investments in the secondary banking sector. I should perhaps explain that the proposed legislation which I have described was envisaged when the Insurance Amendment Act was passed in 1973. It was not a consequence of the failures and I cannot identify any major aspect in which it was influenced by them.

The severe depreciation of equity shares in 1974 made offices more conscious of their vulnerability to market conditions than they had been previously. I do not think that this has led to any general change in investment policy but, in 1974 in particular, uncertainties as to investment prospects for equities and properties and the possibility of unusual demands for surrender values led to a considerable increase in liquidity. Moreover, the attractive yield on Government and other fixed-interest securities in the last two years have influenced more investment in these areas.

The role of institutional investors in promoting the effectiveness and competence of the managements of companies in which they invest has been the subject of much discussion in recent years but differing views prevail. On the one hand it can be argued, bearing in mind that the primary function of an investor of life assurance funds is to protect the interests of its policyholders, that, if doubts arise about a company's management, the proper reaction is to sell an equity holding, but this is not possible where the investment is large and could lead to the collapse of the company. The largest investors of assurance funds have, therefore, from time to time sought by means of discreet discussions to intervene to

improve the management of the companies concerned. There have been moves to establish a medium for collective action by institutional investors in order to bring their influence to bear in these situations but differences of view persist as to the desirability of this.

I much appreciate your invitation to describe the United Kingdom system to you and to take part in your discussion. Differences between the nature of life assurance contracts in the United Kingdom and in many other countries may mean that the United Kingdom approach would be unsuitable in those countries. I think that it is about the best we can get in the United Kingdom to ensure adequate financial strength in conditions which change and fluctuate more than we expected only a few years ago. I commend the approach to you as deserving serious consideration.

MR. PAUL E. SARNOFF: I agree with Mr. Lew as to the need of a life insurance company to examine its policy with respect to both the type and quality of its investments, and the level of surplus that it maintains. I further agree that this examination could lead to an increase in the accumulation of assets, but would point out that it could also lead to an increase in the margin inherent in the premium rate structure.

Mr. Lew concludes that such an examination would give rise to the establishment of contingency reserves. In my view, the use of contingency reserves is a matter that should be given a great deal of thought. It is not at all clear that putting up contingency reserves would make it easier for a company to remain solvent in the future, since the contingency reserve requirements would make the solvency standard more severe. The result could be to increase the cost of insurance to the public.

We should first settle the question of the desirable level of surplus before we allocate the surplus in advance of the happening of contingent events. The idea that was mentioned, of having a contingency reserve to guard against asset depreciation resulting from forced liquidation as a result of negative cash flow, is in my view particularly inappropriate. Advance provisions for negative cash flow should take the form of intelligent management of short-and long-term investments, reasonable control of advance commitments, and the arrangement of an appropriate line of credit to accommodate temporary cash outflow.

Mr. Lew's emphasis on the need to maintain an adequate surplus should serve as a valuable reminder to the profession, and I wish to express my thanks to him for his very interesting discussion.

MR. LEW: I see that Bob Johansen is here, and he has played an important role in the group that advises the New York Life Insurance Guaranty Corporation. Bob, would you care to step forward and explain how the guaranty fund in New York is working?

MR. ROBERT J. JOHANSEN: Thank you, Ed. The New York Life Insurance Guaranty Corporation dates back to 1941 when it was incorporated by an act of the Legislature. Its members are life insurance companies in New York State which have been in business for at least five years. It covers all policyholders of member companies and also includes reinsurance. It has had to deal with three impaired companies during its existence.

The first one involved an impaired company which was continued in business with the amount of the impairment of assets guaranteed by the Corporation. The company eventually worked its way out of the impairment and no assessments were necessary.

The second company, Hamilton Life, eventually became a subsidiary of another company. Again the impairment of capital, about \$1 million, was guaranteed by the Life Insurance Guaranty Corporation. A segregated account has been maintained for the business of the original company and it now appears that the impairment will not eventually be worked off by the business of the original company. Consequently, in about fifteen years it will be necessary for the Guaranty Corporation to make good on its guaranty. At that time the Corporation will make an assessment upon those members who were involved in the original guaranty. It is important to keep in mind that these remarks refer only to the original business (referred to as the segregated business) of the company which was declared impaired.

The third case is an existing problem. Northeastern Life was put under rehabilitation by court order on January 30th and present indications are that the company will be liquidated. This company had a considerable amount of group health insurance in force which was apparently responsible in large part for its going under. Following the rehabilitation order, premium increases of up to fifty percent or more were put into effect. It is likely too that the claim reserves were inadequate. What especially bothers me about this case is that there was no way from a review of the statement to pick up the hazardous condition of the company's group health business. The company was initially marked for surveillance because a review of its assets by the New York Insurance Department resulted in a decrease of assets to a point where they were less than the liabilities, but the real cause which was the inadequacy of the premium rates was not noted until later. In these inflationary times, health business in general could be a cause of difficulty for a company and I hope that some way can be found to prevent another occurrence such as this.

An initial assessment of \$5 million will be made with a subsequent assessment that I would guess should be somewhat less than \$5 million. The Guaranty Corporation, since its purpose is to protect all policyholders of New York companies which are members of the Corporation, will make sure that the policyholders and the claimants especially will not suffer financial loss. I might add also that by now most of the group health business has been transferred to other carriers.

While one may feel that three cases over this period is not too bad a record, nevertheless I feel that a guaranty corporation may not necessarily be the final or best answer. All companies are not of equal solidity. Perhaps prospective policyholders ought to think about the financial stability of the company they expect to provide for their families in the future. The idea, expressed earlier, of guaranteeing payment of claims or cash values only up to some limit such as ninety percent sounds good to me.

There are guaranty funds in seventeen states at present, many of them based on a model bill which has been available for a number of years. Guaranty fund bills are being considered in the legislatures of several additional states this year. The model bill covers not only the policyholders of companies domiciled in the state but also resident policyholders of companies domiciled in other states. A provision in the model bill takes care of overlapping guaranty fund coverages between two states.

The model bill also contains a premium tax offset which provides that assessments on solvent companies can be repaid over a period of years (usually five) by charges against the premium taxes which would otherwise be due to the state. Unfortunately, this particular provision has not been adopted in some of the states which have generally followed the model bill. It is an important provision which not only avoids putting a burden on the policyholders of better-managed companies but also gives the state a stake in providing effective regulation.

MR. J. JACQUES DESCHENES: My comments relate to the proposed valuation standards in the United Kingdom and, in particular, to the valuation of policies with guaranteed surrender values. Although the United Kingdom experience in 1974 has demonstrated that single premium policies with high guaranteed surrender values are vulnerable to a rapid rise in new money interest rates, the same conditions have shown that the traditional annual premium life and endowment policies can survive such a period with relative ease. In the circumstances, the United Kingdom proposal to value assets and liabilities at current interest rates should allow the use of termination rates, if appropriate, when considering the guaranteed surrender value benefits.

MR. G. E. BARROW:* As another visitor from Britain, may I say a word in support of Ronald Skerman? First, I would emphasize that life insurance in Britain contains two distinct elements. On the one hand, there are the traditional offices writing predominantly individual Whole Life and Endowment policies, a major portion of which are participating policies written at substantial premium rates. The bonus loading element in the premium rates confers real strength on the offices. Further, surrender values are not guaranteed. Such offices by having sufficient regard to matching theory have survived swings in the post-war long-term rate of interest on Government securities from 2 1/2% in 1947 to nearly 19% at the end of 1974. This category of life office, whether mutual or proprietary (that is, stock companies in North American phraseology), is conducted in the interest of the policyholders.

The second group are the so-called "modern" offices which are nonprofit offices conducted for the ultimate profit of the shareholders. Now there is nothing wrong in that, provided that the policyholders are not put at risk in order to benefit the shareholders. A situation of "heads the shareholders win, tails the policyholders lose" is unacceptable. If shareholders want to gamble, it must be with their own money and the policyholders' contractual rights must not be put at risk. It is some of these modern offices which got into trouble, in part by bad administration, in part by unsound investment, and in part by poor actuarial judgment. However, even in regard to single premium contracts carrying high guaranteed surrender values, there were available deposit investments whereby money could be placed on deposit for five years repayable at lender's option on twelve months' notice. The existence of such investments greatly reduced the force of the surrender option, but the option existed and could be exercised. In my view, reserves should normally cover 100% surrender. However, I would be prepared to distinguish between single premium contracts where the policyholder is primarily an investor and the annual premium contracts issued by the Canadian offices operating in the United Kingdom which carry guaranteed surrender values. Such policyholders are mainly family men for whom their life insurance is part of their general security provision. For these contracts, I regard the risk of a run on the offices as minimal and, personally, I would see no great objection to including in the statutory reserves a termination decrement based on well-established statistics derived from the experience of the particular office. But to British thinking, a guaranteed surrender value is effectively an alternative settlement option, the existence of which imposes a constraint on the investment policy of the issuing company.

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I would now like to deal more fundamentally with the proposed British system which I believe to be misconceived. My belief is that the primary concern of any supervisory authority should be to ensure that each life insurance company is able to meet its contractual obligations to all its policyholders. That is solvency, clear and unequivocal. In order to ensure solvency in the real sense there has to be something more than the book reserve, to cover the running-off situation and such contingencies as mortality fluctuations and random failure of assets. I prefer that margin to be explicit and measurable rather than contained in implicit and imprecise margins; in the preference I am one of a small minority. But at least solvency is a clear concept.

In the United Kingdom we have rejected solvency in favor of "adequacy", that is, a standard which contains implicit margins and is intended to represent a norm of good conduct. I think we are chasing a will-o'-the-wisp which is leading us into a morass. Again I am in a minority but no longer such a small one.

"Adequacy" is a notion which involves two quite separate concepts. The first is that by having implicit margins in the valuation basis the statutory standard provides an early warning system, and any office which has difficulty in meeting it automatically merits investigation. The theory is attractive but the practice is imprecise.

The standard proposed may trigger false alarms even for strong offices in extreme conditions. It may not give sufficient warning in the case of a modern office, although the latest modification to the proposed basis for valuing liabilities recognizes the need for specific provision to cover the expense overrun in switching from an ongoing to a closed fund basis.

The second concept of adequacy is concerned with bonus distribution and has arisen in a curious way. The 1973 legislation gave the Secretary of State power to intervene in the affairs of an office if he considers that the office is being conducted in such a manner as to prejudice the reasonable expectations of the existing and future policyholders.

The purpose of this somewhat imprecisely defined ground for intervention was unambiguous. It was to give the authorities power to intervene if a life office should become controlled by an "asset stripper" and, hopefully, the very provision of that power would discourage any predatory asset stripper from seeking to acquire a well-heeled life insurance company. However, actuaries being actuaries, we are all steeped in our professional concepts and to us "reasonable expectations of present and future policyholders" implies the maintenance of levels of distribution of surplus to policyholders, except insofar as it may be necessary

for all (or nearly all) offices to adjust bonus rates downwards in consequence of a general financial deterioration affecting all offices.

The second concept of adequacy is quite distinct from the first but leads to the proposition that the value of future bonus loadings should not be used in the statutory basis of the valuation of liabilities and this leads to a net premium basis.

My own view is that the two concepts are distinct, and two separate questions need to be answered. First, can the office meet its contractual obligations to its existing policyholders? Secondly, is this office being conducted in a prudent and orthodox manner? I contend that the statutory returns cannot answer both questions by one set of figures and should concentrate on the first. The second question needs to be answered by specific enquiry in any case when there appears to be reason for concern.

However, the stated aim of the United Kingdom Regulations is to demonstrate "adequacy", and as adequacy, unlike solvency, is not a clear concept, it cannot be defined in principle, but rather by methods. Here I would merely observe that even the methods outlined in the proposed regulations cover specifically only certain main classes of business. They do not deal adequately with group pension business or unit-linked business, and either or both of these classes may represent a substantial part of the liabilities of a company; in some cases, probably over 50% of the actuarial liabilities. The requirement of the regulations is that such "minor" classes should be valued by methods consistent with those used for major classes. Inevitably, this leaves uncertainty of interpretation.

Consider, if you will, two companies each writing predominantly orthodox whole life and endowment assurance business on individual lives, without guaranteed surrender values, and each holding investments broadly matched to its contractual liabilities. However, in one case the office writes only non-profit business whereas the bulk of the business of the other is with-profit business issued on premiums loaded to pay a substantial reversionary bonus. The second office is undoubtedly stronger and has used the strength of its bonus loadings to invest in ordinary shares (common stock, that is) and property. The second office has a lower overall yield and that will have to be reflected by the setting up of higher reserves unless the office changes its pattern of investment by decreasing its holdings of dated fixed-interest securities. Already there is evidence that that is happening and I believe it to be an undesirable consequence if it is brought about solely by the need to meet statutory requirements more easily.

To my mind, for the purpose of demonstrating solvency an office should be able to take account of its gross premiums, reduced by a realistic allowance for future expenses. By realistic I mean one which may be higher than the provision made in the premium basis. There is, of course, a limit to the extent to which an office can capitalize its future bonus loadings because the reserve clearly must be adequate to cover the paid-up policy value (which can be guaranteed without breach of matching theory). But the effect would be that the first of the hypothetical offices I have instanced would have little solvency margin whereas the second, which had to match its investments carefully to its liabilities, would have more freedom. Surely that is the right consequence.

May I emphasize that such a valuation is directed to answering one question, and one question alone: Can this company meet its contractual obligations to existing policyholders, plus whatever explicit margins are thought necessary. Parenthetically, if due allowance is made for all contingencies it may be a surprisingly severe standard.

It does not answer the question, "Is the office being conducted in a manner to enable the reasonable expectation of the policyholders to be fulfilled? Frankly, the interpretation being placed by actuaries on the new statutory "reasonable expectation" provision alarms me. I have always regarded a reduction in the bonus rate as an undesirable but powerful financial stabilizer of last resort, a progressive adjustment which should enable an office to survive the consequences of adverse financial circumstances, circumstances either specific (to a particular office or group of offices) or general (affecting all offices).

It is the existence of this powerful remedy which enables managers of life offices to take risk decisions in what they judge to be the best interest of policyholders. The availability of this ultimate stabilizer has seen us through, for example, two World Wars, the Spanish influenza outbreak, and the depression of 1929-33.

If the rates of inflation which we have been experiencing recently in Britain are not brought progressively under control - and that may be beyond the power of any Government - the effect on life insurance companies must ultimately be profound. In such a situation it seems inevitable to me that either bonuses will have to be checked, possibly reduced, or that the rates of premiums charged for new business will need to be increased, especially for business of long potential duration.

I hope very much that the actuarial profession in the United Kingdom will insist that the directors of an office shall continue to be free to reduce rates of bonus on the advice of their actuary without being required to justify their decision to the regulatory authority. At present such a requirement is not contemplated but I apprehend the possibility.

