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**SOLVENCY ISSUES OF LIFE INSURANCE
COMPANIES IN OTHER COUNTRIES**

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Recorder: W. PAUL MCCROSSAN

- Regulatory standards
- Role of the actuary
- Examination of past experience

MR. W. PAUL MCCROSSAN: I'd like to start by introducing our two panel members and then just give a brief overview of what issues they will be covering. Chris Daykin is the government actuary in the United Kingdom. As the head of the Government Actuary's Department (GAD), Chris is, in effect, an actuarial consultant to the government. He is not the regulator himself, but the person who provides actuarial advice to the regulatory body, which is the Department of Trade and Industry. He also has been involved in frequent visits to North America to discuss with Canadian regulators about how insurers should be regulated. He has met with, and I believe given testimony before, but I'm not sure about that, the Dingell subcommittee on insurance with respect to insurance regulation in the United States. If we think in terms of the balance in the marketplace, Chris can be described as a vendor of actuarial government regulatory services.

Owen Reed is the vice president and actuary with Canada's largest insurance company, Sun Life. He is a consumer of government regulatory actuarial services, and from discussions, somewhat of an unwilling consumer of these services and he might indicate areas in which he feels that he should be buying a different package. Sun Life operates in Europe, North America and Asia, and has extensive operations in the U.K., Ireland, Canada, the United States, Hong Kong, the Philippines and Indonesia. In terms of insurer solvency around the world, Owen can give a perspective from someone operating in the three main continents of insurance services. Finally, Owen was just elected last week as vice president of the Canadian Institute of Actuaries and will be commencing a two-year term in that position.

I'd just like to review some of the issues that might be touched on. As you know, the Task Force on the Appointed Actuary of the American Academy of Actuaries has produced a position paper on the development of the appointed actuary in the United States. We have just passed the 20-year mark for the appointed actuary in the United Kingdom. The appointed actuary in the United Kingdom not only reports on solvency of the company and gives an opinion on solvency, but is required to be in a position where at all times, if asked, he or she could demonstrate that the insurer was solvent and, if that is not the case, must immediately contact the government regulatory authorities to commence discussions. This is an interesting aspect which Chris could give some background on.

In the European Economic Community (EEC), the reserves are set up for solvency based on a net level premium basis, but with resiliency testing. This is, in effect,

demonstrating what happens if there are sudden adverse shocks, and Chris will outline what those types of shocks might be and how people would report on them.

In Canada, some 19 years after the U.K., we adopted the appointed actuary. The appointed actuary not only has to give an opinion on the solvency of the company, but also has to do the dynamic solvency testing which, of course, is the subject of a Society of Actuaries task force right now. Dynamic solvency testing means running future economic scenarios on the expected future financial condition. Obviously in the U.S. this year, there's a movement in the National Association of Insurance Commissioners (NAIC) to move towards the appointed actuary. Canada has adopted and the United States is going to adopt risk-related capital. You have the contrast between the European approach of a more static capital with much more professional emphasis on the reserves and the North American approach with risk-related capital and maybe less discretion on the reserves -- very different approaches.

Once again, comparing North America with Europe, which are two big markets, one sees the difference in capital, the difference between dynamic solvency testing and resiliency testing, and the fact that solvency opinions are required in Europe. Canada has also adopted the policy premium method (PPM). We're on, in effect, a generally accepted accounting principles (GAAP) basis for reserves even in statutory reports, versus more of a net level premium approach used in Europe.

Chris also has been active in developments outside the Eastern Economic Community. As I mentioned, he is a consultant in government services. He has been quite active in helping governments in Eastern Europe establish regulatory regimes, and next week he'll be going to the People's Republic of China to advise them on insurance regulation. He is active not only in Europe in developing the standards in the EEC, but also in the emerging markets in the Far East and in Eastern Europe.

Owen will discuss regulation as an entry barrier or even as a barrier to staying in a country. If a company has significantly different regulatory requirements in terms of solvency testing in different companies, it might not enter a country and to decide to leave a country. Owen is going to cover the issue of regulatory overhead, which is building up for a company that is operating in many continents with the different approaches as well as the difficulties in compliance that a large multinational company faces. With that as a sketch, I'll call on Chris Daykin to outline recent developments in Europe, because we're headed towards the single act very shortly.

MR. CHRISTOPHER D. DAYKIN: I think I'm going to talk mainly about developments in the European Community, particularly in the U.K., although Paul did suggest I might touch briefly on some other parts of the world. First, I'd like to give a little bit of background on the way in which the European Community developments have been going in recent years because they may not be entirely familiar to you. The European Community started in 1957 and quite early on in the development of the community it was decided that we should begin to enable insurance to be sold more easily right across Europe and to bring down the barriers that might prevent that from happening. The initial endeavors were to create the possibility of "freedom of establishment," which means the freedom to set up branches in the other countries of the community. The concept was that each company that wanted to operate within the European Community would be supervised in the head office member state, the member state

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where the head office was situated, and that its supervisor or regulator would be responsible for checking on the overall solvency of the company.

Then, the company would be free to establish branches in any other country and the local regulators would only concern themselves that the branch assets exceeded the branch liabilities – a limited solvency test without any requirement for a solvency margin or risk-based capital (RBC). The aim was to create a structure of solvency margins that are essentially equivalent to your concept of RBC which would clarify the point at which the regulator could intervene in the affairs of the company.

We set up a two-stage intervention system. First, you define a solvency margin and, provided the free assets of the company exceed that solvency margin, you have a *green light situation where there is no intervention in the affairs of the company*. If, however, the free assets of the company fall below the level of that solvency margin, while remaining above the level of something called a "guarantee fund," then that gives the supervisor an amber light to intervene and to seek from the company a plan for the restoration of a sound financial position.

If the free assets fall below the second trigger point, the level of the guarantee fund, then there is immediate regulatory intervention to seek additional capital, or failing that, to close the company to new business and withdraw its license. Now, the guarantee fund has nothing at all to do with guarantee fund as used in the American context. It's simply a term that is used to refer to one-third of the solvency margin requirement and is just the lower intervention point.

In order to determine what this solvency margin should be, there was some work done by a Dutch actuary, who was head of the Dutch Supervisory Authority in the 1950s, which was essentially based on risk theory as then understood, and which concentrated on the liability side rather than the assets side. He came up with the proposal that for life insurance business, there should be an RBC requirement of 4% of the mathematical reserves; and this was not to depend on the type of business. It was just a straight 4% of the mathematical reserves.

When the European Community decided to introduce this formula, they decided to put in an extra formula relating to "capital at risk." Capital at risk is the excess of the sum assured over the amount of reserve held; so that's an extra amount of capital required to take care of mortality risk. Now, the rules that were established didn't say anything about how the assets or the liabilities were to be valued, but that the assets must exceed the liabilities by this defined amount.

The later stage in this game has been the agreement last year of some framework directives – there's a life one and a nonlife one – and these take the process forward because they are designed to enable companies to not only establish branches in other countries, but to also operate quite freely throughout the European Community on the basis of a single license obtained in one country. This could be a model which could be useful, for example, in the United States if the regulators could agree that one regulator would be the prime regulator and the others would then accept the regulation carried on elsewhere.

This is now the situation in Europe. This becomes effective from 1995 in its full form, but is already approved and agreed and is in the process of being implemented. There is total mutual recognition of supervision, so that each regulator recognizes the regulation in other countries and is not permitted to add any further layers of regulation regarding solvency, although there is still the possibility of local regulation of selling and marketing practices. Under this process, no prior approval of products or premium wordings or premium rates is permitted. That is a major shift as far as some of the European Countries are concerned since the system of supervision operating, for example, Germany, up to now, relied very heavily on the approval of the product at the initial stage and agreeing the premium rates that were to be charged, and then the company simply had to follow that through and implement it, including the reserving basis.

There will be some restrictions on the assets which can be held by companies, but they're very broad in their context. They effectively amount to saying that you can't invest all your assets in equities or real estate and certain, more speculative types of assets would be restricted. Now, the difficulty in the whole process is agreeing what constitutes adequacy of technical reserves because there was some concern that some countries had a more liberal system than others. Some had a very structured and formal system and others relied heavily on the role of the actuary.

Now, the European Community has had a lot of discussion about this and the process they went through is to ask the actuarial profession through the Groupe Consultatif (an umbrella body that represents the actuarial associations of the European Community), how to arrive at a solution of what constitutes adequacy of reserve, which will be acceptable to all of the various philosophies. The commission sought the advice of the Groupe Consultatif on a set of actuarial principles for the reserving for life insurance. The principles that were proposed by the group were implemented into the life framework directive. So the framework directive does not lay down any specific reserving requirement. It doesn't lay down rates of interest or rates of mortality or anything as specific as that. It sets out a series of ten principles that every supervisor within Europe either has to comply with or ensure that they will be complied with under their own processes.

First, there should be a prudent valuation of all future liabilities of the company. Second, these reserves should include an appropriate margin for adverse deviation. This, I think, reinforces the point that Paul was making, that this is not a best estimate, GAAP-style valuation. It's a valuation that includes a margin for adverse deviations and that's expected. The method of valuing the liabilities must take into account explicitly the method used for valuing the assets, so one would expect it to differ according to whether the assets are valued on book values, on market values, or how assets are dealt with.

The valuation methods must essentially derive from the calculation of individual provisions for individual policies, although it is permitted to use approximate methods where they can be demonstrated to give an adequate result. There may be some cases where an additional general reserve is required, for example, in relation to tax liabilities or acquired immune deficiency syndrome (AIDS).

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The reserve held in respect to the policy must exceed any guaranteed surrender value that exists on the policy and must be calculated using a prudent rate of interest having regard to the return on the assets. Then there must be prudent allowance for future expenses of running the business in order to ensure that the company has sufficient resources to be able to run off that business should it be closed to new business.

Then the method of valuation must take into account future bonuses. This doesn't stipulate that there must specifically be a reserve in respect to every type of future bonus. Certain types of certain bonuses, terminal bonuses for example, are often covered by appreciation on assets and may not be the subject of a specific reserve other than perhaps the difference between the market value of the assets and the book value. Last, the method of valuation must recognize profit in an appropriate way. This doesn't seem very relevant from a U.K. perspective because the statutory returns are not used in any way for the recognition of profit in company accounts, but in most other countries in Europe the same set of accounts is used both for the shareholders and for the regulator.

This whole process represents a very major shift as far as most of Europe is concerned, particularly in respect of the absence of prior approval of premiums. There is also a shift taking place towards market-value accounting or fair-value accounting. We've had in the U.K. for many years a requirement for the regulatory returns to be completed on a market-value basis, but it hasn't been compulsory for shareholders' accounts. Nevertheless, most companies do report on a market-value basis.

In other parts of Europe, the tradition is to use book values. Indeed, in some countries – again, Germany is an obvious example – book value is not just the value at which the company bought the assets, but it's the lowest value that those assets have ever had in the market. If the market goes down, the company writes them down. If it goes up, it doesn't. Germans have a very conservative approach to asset valuation in principle, but now that must be changed because under a different directive, the accounts directive, all companies in Europe are required to disclose their market values. They still have the choice of actually doing the accounts on a book-value basis and simply disclosing the market value in a note to the accounts, but it must be disclosed.

Another point is that throughout Europe the tradition has been to set the reserving basis the same as the premium basis, so that the initial product approval process not only approves the premium basis but also defines how that business should be reserved for in future years; because the same technical assumptions are used throughout, both for the premium and for the technical reserves. Now, that's not the case in the U.K., the Netherlands, Spain and Ireland where we separate the two concepts and say the premium basis is a commercial decision as to how the company wants to sell the business, but the reserving basis must be prudent and conservative.

That now is a possibility that opens up markets throughout Europe and there is undoubtedly going to be a much greater role for the actuary in this process, because the company will no longer rely on the supervisor to approve the premiums. Companies will have to come to a commercial decision based on actuarial advice as to the

appropriate level for premiums. There's also going to be a good deal more disclosure of what's going on. A lot of information that has until now been hidden from the consumer in some European countries will now be in the public arena and, undoubtedly, there will be a great deal more competition throughout Europe.

That's the European scene in which we find ourselves. The U.K. probably has the most developed life insurance market in Europe in terms of the variety of products available and, as the moderator said, has had the appointed actuary system in place now for 20 years. In the form in which we now have it, we've had sort of an appointed actuary system for 120 years, but it's only 20 years ago that the appointed actuary was given this formal professional responsibility for monitoring the position on a continual basis. That's not in the law. It's in the actuarial standards of practice. The actuary has that obligation to satisfy himself or herself that at any moment, if he or she were to carry out a valuation, the situation would be satisfactory.

The professional standard also goes on to say that if he or she is at any time concerned that the situation is deteriorating and that the company is not taking the sufficient measures to alleviate the situation, he or she should go and talk to the regulator. In practice, that means coming to talk to the Government Actuary's Department. The Government Actuary's Department acts as actuarial advisor to the regulator. We have about 15 actuaries on staff involved in regulatory work; about 11 are life actuaries and the others are property and casualty actuaries. We have regular contact with the appointed actuaries. We visit the companies. We review their financial statements and we are responsible for recommending to the Department of Trade and Industry whether any regulatory action is required. Each time a new appointed actuary is nominated by the company, I invite that individual in for a chat, usually for about an hour, to discuss their responsibilities, their role within the company, their access to the board of directors, and so on.

In the U.K., we have very strong actuarial involvement. The regulation for reserves in the U.K. places responsibility first and foremost on the actuary. We do have a fall-back minimum valuation requirement, but the main valuation regulation is about three lines and says that the actuary shall make proper provision on prudent assumptions for all the outstanding liabilities.

These are some of the issues that we're facing in the solvency arena in the U.K., some of which may be familiar on this side of the Atlantic as well and some of which not so. Let's just look at these items. I want to talk briefly about the question of falling investment returns, resilience testing and how that compares with cash-flow testing, dynamic solvency testing, accruals accounting, which is a form of fair-value accounting in the U.K, a shortage of capital leading to problems with growth in some areas of the industry, concerns over the measurement and disclosure of financial strength, and finally some issues relating to modern financial instruments.

What has happened to investment returns? Over the last 10-15 years, investment returns in the U.K. have been extraordinarily high and returns on participating policies have been approaching 15-20% a year on average over a 10-20-year period.

Extremely high returns have produced very good value for money for the policyholder. Of course, it has been a while since inflation has gone up to quite high levels and

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now we're in a completely different game. Inflation in the U.K. at the moment is about 1% and obviously investment returns have declined correspondingly. We are seeing a situation where people can't expect the previous levels of bonuses to continue.

In the U.K., we have a system of bonus distribution that might be unfamiliar to people in North America. It involves adding to the guaranteed sum assured an amount called a reversionary bonus. Each year some bonus will be declared that will be added to the guaranteed sum assured, but then the main part of the bonus often comes in the form of a terminal bonus that is not declared until the policy becomes a claim on maturity or death. These terminal bonuses are usually a very major element of the total payout. A typical situation on a life insurance product, a 10-year endowment policy in the U.K., would be for only one-third of the total payout to be represented by the guaranteed sum assured. Another third would have accrued over the period of the policy in terms of reversionary bonuses. The final third would just be allocated at the end as a terminal bonus.

Clearly, with the investment returns falling, there is a process of managing the reduction in the bonuses, particularly the terminal bonus. The one that is most difficult to manage is the reversionary bonus, because any bonus that you add in that form becomes a liability and reduces the company's freedom of investment. In so far as the bonus is distributed as a terminal bonus, the company's left with a lot of freedom in its investments. Since the company doesn't have to lock into any particular guaranteed liabilities, the result is that most large life insurance companies in the U.K. invest about 80% of their assets in equities and real estate.

Common stock and real estate make up probably 80% of the portfolio of traditional life insurance companies in the U.K., although that's changing a little bit because more and more of these companies now have particular blocks of business that may require a different investment policy. There's a strong tradition of notionally allocating assets to blocks of business. For example, if the company has a portfolio of annuities, that will be very closely matched with appropriate fixed-interest securities which will be dealt with as a separate issue by the actuary as compared with the main block of with-profits business. Also in the U.K. approximately half of new business is variable unit-linked business where the value to the policyholder is directly linked to the value of the assets. That type of business requires some different methodologies since those assets are almost exclusively invested in equities.

Let's talk briefly about the resilience test. As Paul mentioned, we have had within Europe a tradition of using the net premium method of valuation for technical reserves. That has changed quite a bit in the U.K. in recent years, because, for the unit-linked type of business, it's not a very appropriate method of valuation. Since the early 1970s, we've been using a gross-premium cash-flow method of valuation for unit-linked products. The net premium valuation has been retained, because of its virtues, mainly for controlling with-profits business. It avoids having to make explicit assumptions about bonus rates in the future and enables the bonus to emerge in a controlled way.

That works quite well for certain types of business. For annuities, for example, the valuation rate of interest goes up and down in line with the market and, provided the

assets are quite closely matched to the liabilities, the company doesn't experience much strain and can happily ride changes in the market situation. With the profits business, however, the net premium valuation is not as sensitive to the rate of interest as the value of the assets and there are strains as the market goes up and down. The introduction of the resilience test was an attempt to make companies look ahead at the possible impact that changes in the investment scene could have on their business.

In principle, the actuary should be carrying out a cash-flow testing approach all the time in order to satisfy himself or herself that the future adverse scenarios that come up can be adequately met by the company. That's an underlying assumption regarding the appointed actuary system. Because of this continual monitoring process, scenario testing must be going on. The regulations require the actuary to check that the possible future changes in the value of the assets can be dealt with by the company; and that's not just in terms of the cash flows, but it's really a question of would they still be able to demonstrate solvency tomorrow if the assets suddenly changed value.

The GAD introduced this working rule as a way of looking at companies' returns and asking questions. We introduced it to actuaries initially in an informal way and then it became more formalized. What would happen if the fixed-interest bond yields changed by 300 basis points either way? What would happen if there were a sudden 25% drop in the company's real estate or equity values? Would it still be able to set up reserves that would be adequate and meet its solvency margin?

We introduced these tests and actuaries began to do these tests and indeed to disclose in their returns to the regulator that they had done them. In fact, they are quite stringent tests. It differs from dynamic solvency testing in that it's not really concerned with the cash flows, but with ability still to meet regulatory requirements in the event of adverse scenarios.

One of the problems that we had within Europe is that the U.K. system of regulation involves both heavy responsibility of the actuary and these resilience tests. This approach was completely unknown as far as the other European countries were concerned. On the other hand, we had a reputation in Europe of having very weak reserving standards; because we didn't have a rule in our law that precluded you from using more than 3.5% net premium valuation. In fact, tests that were carried out by companies operating in more than one territory demonstrated that the U.K. reserves were often about 50% higher than in any other European country. I think the danger is more the other way around because the U.K. has such a tight system of regulation through the actuarial profession and the involvement of GAD. We were handling risks that other supervisors hadn't even thought of, like the risk that inflation might push up the expenses in the company and the margins on products would not be adequate to cover them.

Let's turn to the issue of accruals accounting. Because the statutory accounts are on a fairly conservative basis, there has been a general push from the accounting profession and from the stock market for a more realistic system of accounting for the purposes of declaring profit and demonstrating the value of a company. There has been a lot of discussion on this in recent years. There is fear by actuaries, i

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think, that this would undermine their reporting control on the company. On the other hand, there is a desire by companies to demonstrate that they had good shareholder value to avoid being underpriced on the stock market, which could lead to takeover situations.

Market value is always used for the assets these days. The question is, how can one value the liabilities on a fair-value basis which doesn't hold back the emergence of surplus to the same extent as a statutory basis? When a company writes a product in the U.K., it costs money. A company doesn't make profit on it usually until five or ten years down the road when the statutory basis allows it to get the surplus out. Initially, it's very costly and very capital intensive to write new business.

Now, the idea of the accountants was to say, "Well, you did most of the work as far as the company is concerned when you wrote the policy. A lot of the work goes in selling it, the marketing process, and the writing of the business. Let's recognize that. Let's have the profit recognized when the company has written the policy rather than ten years down the road."

The accruals accounting process is a method of valuing the business on a gross premium basis which doesn't hold back the emergence of surplus. Indeed, it allows a company to recognize profit in proportion to the work done and therefore much of the profit emerges at day one when the policy is written.

One difficulty with this is that a company may show this as profit and may say, therefore, the value of the business to the shareholders is so much; but the actual amount that can be distributed to the shareholders is controlled by the regulatory process and the regulatory returns. Companies are, for the most part, committed to distributing 90% to policyholders and 10% to shareholders out of the regulatory surplus. They can't change that proportion unless they go through a process of telling all the policyholders and allowing them to complain to the regulator and so on. The profit that is disclosed through the accruals accounting process may well not be distributable and that will be one of the difficulties of disclosing it.

Briefly on the question of shortage of capital, because the reserving requirements are strong, companies have said it makes it very difficult to write new business. In fact, they are refusing to take on certain types of business. Pension funds and pension plans have had difficulty when they wanted to discontinue because they couldn't find an insurance company willing to write deferred annuities of the sufficient volume for a pension plan to buy out its liabilities. There's also a strict control within most companies on how much new business they can write in order to avoid getting into difficulties with the solvency margin requirements.

This has led to more and more companies focusing on product designs that are not so capital intensive; these are mostly unit-linked styles of product with very high front-end loadings on the policyholder so that the first year or two of premiums doesn't actually give rise to any units and the units only beginning to accrue in later years. That effectively diffuses the capital situation from the company's point of view.

Mutual companies have particular problems in trying to grow in this environment and there have been several demutualizations or proposals for demutualizations which have usually involved the transfer of the whole of the business of the mutual company into a new proprietary vehicle, often in several cases owned by a bank or some other deposit-taking institution.

Reinsurance has also been a way out of capital shortage. Financial reinsurance products have grown over the last few years.

Financial strength is clearly the responsibility of the regulator, but there also is a problem on the marketing side because the independent financial advisors, the interfinancial associations and brokers, have an obligation under the financial services legislation to give the best advice and to satisfy themselves as to the quality of the products and the companies they're recommending. Therefore, they felt that they have a need to look at the financial strength of companies and they do this very often by looking at the so-called form nine ratio, which is the front page of the statutory blank which shows the solvency margin situation, the assets and liabilities.

The unfortunate thing about this ratio is it doesn't really pertain to the strength of the actuary's valuation which varies a good deal between companies in the U.K. because there isn't any statutory basis. Therefore, a lot of companies have considerable hidden strength which doesn't appear through this process. There's also a question mark in my mind as to whether this is an appropriate way for brokers to behave, because the companies that have the greatest strength in terms of this ratio are often the ones who are simply not distributing the profits they're making. They're holding profits back and keeping a big solvency margin, so there isn't any direct correlation between good value for money to the policyholder and financial strength as measured by this ratio. Provided a company is in a reasonable state with regard to its financial strength, there are much more important issues like what investment performance is like, how much is being passed onto the policyholder, what expense levels are like, and so on.

With respect to derivative instruments, I think the life insurance industry has been slow to really pick up on all the different financial instruments that are available in the market. Perhaps that's just as well because some of them are fairly difficult things to get involved in, but now there is an increasing use of options and futures and warranties and so on within the insurance market, and some of them are being used to back particular types of products. In the U.K., we had unit-linked products in the 1960s and early 1970s which had maturity guarantees. So apart from having the benefit of assets moving in line with the market, a policyholder also had a guarantee that he'd at least get his money back through a guarantee, for example, of the return of premiums.

Actuaries did some work using stochastic modelling in the mid-1970s and demonstrated that the reserving requirement for these guarantees was colossal and all companies stopped writing the business. They are now coming back into the market, but using options so that the guarantee would be matched against an option written with a triple-A-rated deposit-taking institution, usually offshore. This practice raises all sorts of difficulties from the perspective of regulation and disclosure partly because one has no idea how the institutions in question are being regulated and whether they

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are setting up any reserves for these considerable risks that they're taking with the options.

As we come into this brave new world of Europe 1992, as it's referred to, because December 31, 1992 was the date set for the completion of the legislation for the single market, we're now going to see a completely new market situation developing within Europe with companies beginning to operate much more across the whole of Europe. That will mean a lot of new types of contracts becoming available. Some countries will see this more than others. The ones that have had a very tight system of control will see an emergence of a whole new range of possibilities.

I believe that the way forward in terms of regulation in the U.K. may be perhaps to relax on the resilience test approach, but to enforce dynamic solvency testing through the profession. It's very interesting to see how this has been developing in Canada in particular, but it also seems to be becoming part of the U.S. scene with the cash-flow testing concepts. What we're really moving to is having the actuary responsible for a financial condition report, which is not just on the current situation, but looks forward and says this is the way the company is going and these are the sorts of contingencies which could adversely impact on the company in the future.

There's also a question as to whether we could improve our RBC. Our formula is so crude at the moment at 4%. Perhaps we could do something more sophisticated, but I think our view in Europe at the moment has been to concentrate on the technical reserves as establishing appropriate margins for risk. The main objective of the solvency margin is simply to give a mechanism for the supervisor to intervene. It doesn't really represent RBC.

That's just a brief overview. Further east than the European Community, we have a whole range of new markets. There isn't time to talk about them all but in Russia, for example, there are more than 1,000 insurance companies now and the regulatory process began in Russia less than a year ago.

They had a whole year of total deregulation, after the end of the Gorbachev period, during which time most of these 1,000 insurance companies were established with minimum capital. So, they have a very serious situation to face in terms of bringing these companies under control, and insuring both proper capital standards and proper management of these companies by people who, for the most part, have absolutely no experience of insurance; because they didn't have insurance in the way that we understand it in the former Soviet Union. They're all stretching their intellects in order to get around this very considerable problem. Things are not quite as uncontrolled as that in the other Eastern European countries, but there are big challenges there as well.

MR. OWEN A. REED: The fact of the matter is that, as recently as a week ago, I didn't expect to be here. Having made the effort to come here, I would like to have a little bit of fun in the process. I was warning Chris I was going to take a couple of digs here and there. I was asked to comment on barriers to entry and staying in a particular territory. Obviously, all the regulatory requirements themselves are potential barriers and the multiplicity of requirements in all the different territories all adds up to a considerable chore.

It's recognized that the Canadian industry is well run. I said to Chris, "Why can't the U.K. regulators look at my company on the basis of its Canadian statutory return on its worldwide operations?" A particular barrier to entry is sometimes the accounting convention which is imposed by the home territory when compared with, say, the U.K. convention. For example, in Canada, common stocks are amortized towards market value on a set basis. In the U.K., the companies can pull in the difference between market and book on a totally discretionary basis. For example, if companies were competing in a marketplace, European companies could really gear up the dividends on their policies compared with what could be done by a Canadian company in Canada operating under its rules.

I also was asked to comment on branch versus subsidiary considerations. In the first place, the law of a particular country could well be cast without thinking of branches at all but only thinking of domestic companies and subsidiary operations. A case in point is the U.K. The law is not cast with branches in mind and, as a result, our returns to the U.K. for regulatory purposes are imposed on our worldwide operations. We have to file a return on the worldwide operations and also a return on the European Community business; that is to say on the U.K. and Ireland business.

There are income tax considerations, of course. Another consideration is which alternative makes capitalization of the operations easier. It's obviously easier to capitalize under a branch operation than it is under a subsidiary operation.

I'd like to make one point which I consider to be very important, particularly with all this discussion about accounting principles; when you determine reserves using discounted cash-flow-scenario testing techniques, it doesn't matter what the accounting convention is, at least with respect to the assets backing the reserves.

The actuary tests for a set of assets that have sufficient cash-flow potential to cover the expected liability outflow. When you get this set of assets, the reserves that you need in Canada are the book value of those assets. In the U.K., it's the market value of the assets. In the U.S., it's the book value of the assets. So absent any particular scenario-testing requirements, such as Chris Daykin's plus or minus 3% tests and so on, the actuary would have the identical assets and just change the reported value according to the accounting convention.

Now, what this means is that if a company is solvent on a book-value basis, it's solvent on a market-value basis. That is an axiom and vice versa. Unfortunately, this truth is having difficulty working its way through the regulatory thinking and certainly through the accounting thinking. Yesterday we were hearing about the Financial Accounting Standards Board (FASB) and it's virtually going to impose market-value-based accounting on us. For Pete's sake, when was the last time anyone ever had a good word to say about a FASB edict? Yet these people are going to impose market-value accounting on us.

At this point, there may be some people here from smaller companies who might like to point out that they don't go in for discounted cash-flow testing and so forth. I guess I like the New York approach to this problem. If you don't do the testing, beef up the reserves. That's the same approach that's used in Canada. Where there's

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more doubt about the actuarial assumption, you have to put more provision for adverse deviation in the assumption that you use.

I'd like to say something about the different territories and how they stack up comprising the strength of the reserves and the strength of the RBC requirements in the overall situation.

In the U.K. and Ireland, the accent is definitely on strong reserves. In addition, they have very rough RBC requirements. My categorization of these territories is that they are keyed to the wind-up situation rather than the going-concern situation. They simply don't want any insolvencies. The reserves are strong because they have to meet conservative statutory requirements, including minimum margins on the interest rates and satisfying these stress tests.

Let's consider single-premium annuities. The U.K. reserves are strong and, in addition, there's a 4% capital requirement. For the U.S. actuaries, this is heavy stuff when you consider the small C-3 component in the U.S. It seems to me a clear case of overkill. But in defense of the U.K., I believe they had to buy into the European Community's RBC requirements. Their assets are on the balance sheet at their market values, but virtually all companies have an investment reserve. So when they keep their accounts, the book values of all the lines of business add up to market values minus this investment reserve; so they're not really on a market value basis.

Moving on to other territories, Hong Kong insurance law is based on the U.K. setup. However, the reserves need not be as strong and there are no RBC requirements. There's a flat-dollar hurdle that you have to meet.

The Philippines insurance law was modeled after the typical U.S. state law of some decades ago. For individual insurance, the statutory minimum reserve is a 6% Commissioners Reserve Valuation Method reserve. The Philippines environment is one where the inflation rate is 8-9% and the after-tax investment yields are about 14%; so the 6% reserves actually turn out to be relatively strong. Invested assets are valued as for U.S. statutory purposes, with the exception that real estate is valued at fair value. The problem with the Philippines is its exchange controls. It's not too easy to get money out and so you think twice before you put money in.

We don't operate in Australia, but I've had some exposure to it. Currently, it is set up similar to the U.K. It is heading for dual reserves with one set of reserves for income purposes and a stiffer set of reserves for statutory purposes and, in addition, some RBC requirements. For example, their common stock requirement is 40% of the market value of the stocks, and it's higher than the U.S. requirement because the Australian market has been more volatile.

One of the problems in the U.S. is that the regulators don't seem to hold us actuaries in too high esteem and I guess we're to blame in part. We have had the valuation actuary concept in Canada for about 15 years and I believe there have been very few cases of complaints of unprofessional conduct. Needless to say, the sooner we gain the confidence of the regulators in the U.S., the sooner we can get on with a logical valuation system.

One of the problems in the U.S. is clearly that actuaries have done scenario testing, but they seem to have a little difficulty in biting the bullet as to where to set the reserve itself. I believe the solution to that is for the regulators to specify a couple of scenarios that simply have to be met and then we can all get on with the job. U.S. statutory minimum standards are not always as strong as Canadian standards, contrary to popular belief. However, the U.S. premium deficiency standard and, for that matter, the similar U.K. standard, is undeniably tough on local low-premium/annual-premium business.

This situation may have actually triggered some solvency problems because a lot of brain power was expended on how to avoid these deficiency reserves. Instead of the regulators coming up with a compromise, they're all living with these tough rules. My own company thinks that the U.S. standard nonforfeiture law is itself a threat to solvency in that it requires guaranteed cash surrender values which, as we all know, can lead to rapid and severe disintermediation. We're all becoming familiar with the proposed U.S. RBC requirements. The result from my own company on a U.S. branch would seem to be reasonable overall, but I feel myself that the C-3 requirements are a bit skinny and the C-2 requirements for group life are on the high side.

Moving to Canada, I guess Paul said something about the setup. We've moved to an income-type reserve supplemented by surplus appropriations. For example, if the reserves turn out to be less than the cash surrender values, you appropriate surplus to make up the difference instead of adding it to the reserve. We have RBC requirements and we have dynamic solvency testing, as has been mentioned. I'm not entirely satisfied myself with the new system we have. I think it could be improved upon.

As I've said before, since cash-flow tested reserves are cash-flow tested reserves, they have equal strength in all the territories as far as I'm concerned; so which territory has stronger reserves depends on things like statutory minimum requirements which supplement the cash-flow testing. In the U.S. and U.K. for annual premium products, you have zero lapse rate reserves and potentially they're the strongest. In Canada though, the actuary has to set up a reserve for future expenses and it depends on what the interest rate and the inflation assumptions are. When the reserve for expenses is added into the Canadian reserve, stronger reserves can be required than those in the U.S.

As you might have guessed, we tried the U.S. RBC on our worldwide operations as well and we found that the surplus adequacy ratio was just about the same, which was interesting. However, the Canadian regulatory authorities would require us to operate at 120% of formula, not 100%; so the Canadian requirements are tougher than the U.S. requirements. If we can get back to the example of single-premium annuities, the Canadian requirements are expected, I intend, to be tougher than the U.S. and I guess the U.K. would probably be the toughest of the three.

I mentioned that I thought the U.K. setup was keyed to the wind-up situation. You probably know that the Canadian RBC requirements are keyed to the going-concern situation, as are the U.S. requirements. My colleagues at Sun Life thought it would be interesting if we said something about the attitude of the regulators. We think we

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can learn something from that. Each year on my own initiative, I visit the Government Actuaries Department in London.

In the U.K., the published report actually contains a sort of mini valuation report. It asks questions about how to devalue the liabilities, but probably because it's a public report it doesn't really have that much meat. For example, I was really interested in knowing how one company valued participating individual business. I believe their report said something like they valued 87.5% of the dividend scale and they used a valuation interest rate of 3.5%. As to why it was 3.5% and why it was 87.5%, they had no idea. I presume Chris finds out why when he has the discussions with the individual companies.

The Canadian report for us is consolidated worldwide and we go to considerable trouble to make it as concise as possible. We've seen some companies' reports that go on and on and are about one-and-a-quarter inches thick on just a few hundred million dollars in liabilities. Our problem is that we must cover liabilities in different territories and bring in the subsidiaries and so on, all converted to the Canadian approach. I think we have about 60 pages in Canada, not counting the appendices where you have to report the mortality assumptions and so on. I think that most of the other companies tend to put together longer reports than that. The U.S. report is quite a bit smaller because it doesn't have to cover the worldwide operations.

Finally, I can't recall any jurisdiction having a specific regulation on liquidity requirements, but such requirements would seem to be very likely in the future in at least some form or another. On this one, I sincerely hope that we head off FASB in the U.S.; in other words, get in some suggestions first of all. Meanwhile, all the higher level examinations should spend some time digging into asset/liability management.

MR. MICHAEL J. COWELL: Owen, I was particularly interested in your comments about the NAIC RBC from your perspective as a Canadian and I don't want to sound overly defensive, having served on the industry advisory committee, but you commented that you felt that the C-2 requirement for group life was on the high side. That formula, which is ultimately 50 cents per \$1,000 in net amount at risk, is identical to what's in the minimum continuing capital and surplus requirements (MCCSR) in Canada. In fact, the very modelling that we used to get there was something that was developed by a couple of Canadian actuaries published in the *Transactions*, so I'd be interested in your comment on why you feel the group life requirement is too high. This is before the covariance adjustment with C-1 and C-3.

MR. REED: I believe I actually fed some comments to you when the U.S. formula was being developed. I guess the question is, do you have a portfolio that is largely fully experienced rated or not? If it's fully experienced rated, I think most big group writers would say that the capital requirements are on the high side. We've done our own work on this and we've got a multiformula for group life. Basically, it seems to equate roughly to about 30 cents per \$1,000, which is what we get out of the minimum continuing capital and surplus requirements formula because we have a 65% reduction factor that's applied to it because of the size.

