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Summary: The National Association of Insurance Commissioners' Life and Health Task force is crafting the next century's valuation law. This has the potential of reshaping how we will do business in the future. To have access to the best information available outside of the U.S., the AAA researched the valuation and insurance environment in 14 countries covering five continents and close to 70% of the world market share.

The panel discusses issues such as:

- *Why are we looking abroad?*
- *What are the arguments supporting why U.S. practices should be different?*
- *What is the general insurance environment in other countries?*
- *What types of valuation systems do these countries have?*
- *What is the role of the actuary in these countries?*
- *What can we learn from our foreign counterparts?*

Mr. Daniel J. Kunesh: This session is, in effect, a corollary to the Valuation Task Force's efforts that have been going on under Bob Wilcox. I am very privileged to share the speakers' podium with two distinguished speakers. Shirley Shao is vice president and associate actuary with the Prudential. She has been very active with a number of committees of the SOA and the AAA, particularly in efforts with the State Variations Task Force of the Academy. Ed Freeman is with Sun Life Insurance Company of Canada (U.S.), in Wellesley Hills, MA., where he is finance actuary. He has been in the U.S. for two years. Ed is a Canadian and will be addressing Canadian issues. I am with Tillinghast in Chicago. I will be touching on Australian issues.

We will start with Shirley. She will explore and explain the various alternatives that the Valuation Task Force looked at from an international perspective, why this approach was taken, and what the results were. She will also provide you with some of her perspectives on the value of this research. Next, I will provide a quick comparison of the U.S. and Canada in some areas, but will focus my attention on Australia and why its valuation system might provide meaningful experience to the U.S. Then Ed will follow up with some very interesting perspectives on the latest developments in Canada and why they may be useful.

Ms. Shirley Hwei-Chung Shao: I will first talk to you a little bit about the Valuation Task Force, and why this task force was formed at the beginning of 1997. We formed our charge from a blank piece of paper. We first analyzed the advantages and disadvantages of the current system, and it basically boils down to one thing. The current system is very old. The last time we really revisited the valuation system was about 50 years ago, and ever since that time, we have been doing a lot of patching jobs, and it is just getting worse and worse as time goes on with the new products and the new regulations. We're not being very effective in this process.

The reasons for searching for a new valuation system are self-explanatory. One of the reasons is that our system is not very competitive, not just domestically when we are compared with the banking industry, but also not internationally. When compared to countries abroad, our system is really quite cumbersome. So we felt that it's very important for us to be strategically positioned in the international world. It's important for us to know where we are and also move to the best practice in the world.

Mr. Wilcox, the chair of the Valuation Task Force, formed a work group, and I was asked to be the chairperson for that work group in May 1997; we came up with a 100-page report at the end of the year. We felt that we should be benchmarking ourselves, but there are so many countries in the world we didn't really know where to begin. We did some analysis, and came up with several criteria we look for. The first criterion is we want to have some kind of geographic diversification. We really went over five different continents. We have about four countries in the Pacific-Rim area, two in North America, two in South America, one in Africa, and five countries in Europe. That's how we decided to begin.

The second criterion we chose is the capital deployment. We looked for countries where U.S. companies have invested and vice versa. (Some have come to the U.S. to invest.) The third criterion is the proliferation of insurance in the country. We want to have pretty good coverage. If you look at these 14 countries and the U.S., you'd see we have over 80% of the world premium revenue covered. To give you some background, the U.S. premium makes up about 20% of the world share. So

the rest is really made up by these 14 countries. Their valuation systems are really quite different. Even when we narrow it down to 14 countries, we still have a huge task in front of us because they're just so different, and there are so many different things we can be looking into.

Since this is related to the Valuation Task Force job, we want to focus on valuation issues. We want to focus on the role of actuaries in the valuation process. We want to also focus on the nature of regulations, in particular, liability relations in these countries. But we don't feel that it's fair to preset just those items without getting some background because it can provide the context as to why these systems are in place. We spent a lot of time gathering the background information, and we incorporated all the topics we examined in our report. We also chose a template format so that we can summarize all the information in a more organized way. Therefore, our report is only about 100-pages long. The back-up information is quite lengthy. I will go into each one of these items and talk to you a little bit more about what we have learned.

First, we looked at the market itself. We looked at not just the insurance market but the overall macroeconomics. I'll discuss some of the more interesting items we looked into in each one of the countries. One is the gross domestic product (GDP). We not only look at the GDP, but at the premium as a percentage of the GDP. The most impressive country is, by far, Japan. It has over 10% of its GDP attributed to the insurance activity, which is very high on the list. Then, at the bottom of the list is Brazil, which has a very small percentage. We also look at things like savings. That's highly related to the region. If you look at Asia, the savings ratio is incredibly high. It ranges between 15–50%. In South America, the savings ratio is still high, about 15% or so. Europe, like the U.S., is very low at about 3–3.5%. These 14 countries make up about 60% of premium, but of that 60%, actually 40% is attributed to Japan. So Japan is, by far, the largest premium as far as world-share is concerned. It's the largest market.

In the countries we studied, the biggest population is in Brazil, Japan, and Mexico. It has over 100 million people.

Next we looked at the products. The products, like savings, are highly related to the region you're in. If we look at South America first, it's mostly in group and social insurance-related products, but when we go to Asian markets, they're relatively traditional products with a lot of whole life, term, and some variable life insurance products. When we look at southern Europe, specifically Spain and Italy, we would see that they have a lot of annuity endowment products. The Netherlands and Germany have a lot of traditional products. The U.K., of course, is moving pretty much towards the investment-oriented products.

We also looked at the nonforfeiture requirements. The countries having explicit requirements are Australia, Brazil, Germany, and Mexico, but their requirements are not as detailed as our nonforfeiture asset-carrying values. For example, Australia, Mexico, South Africa, and the U.K. all adopted market value or fair values for both fixed income and equity investments. Canada, Chile, Germany, and the Netherlands, are more like us. The fixed-income securities are amortized at cost while equities are at market value. In the U.K., all the realized capital gains and losses must go through the profit-and-loss accounts. We also looked at the asset allocation restrictions. Countries like Brazil, Germany, Italy, Japan, Mexico, Singapore, and the U.K. all have explicit restrictions on admissible assets, just like the U.S. We also looked at the asset mix, which really varies widely. South America has a lot more equity investments. In South Africa and the U.K., and definitely in the U.S., more investments are being allocated to equity type of investments.

We next look at taxations. We concentrated more on the company-level taxation, and they really vary widely. If we would look at the effective rates being paid by the companies in different countries, it ranges from 15% in Chile to 53% in Italy. The basis for taxation is very close to their statutory basis. Some are with some minor adjustments, but they're largely going by their statutory requirements. The next one is the one we concentrated a lot of effort on: liability valuation systems. We put them in two large buckets. One is what we call net premium reserves and the other one is gross premium reserves. For the net premium reserve, we put them in two different buckets. One is what we call selected guarantee benefits. This is like the U.S. where only selected ones are chosen in the valuation, for example, mortality or interest rates. Some countries allow more guarantee benefits to be reflected in the valuation systems. I can go down the list to give you a feel as to who these people are.

Let's look at Brazil, Chile, Germany, Italy, Japan, Mexico, and Spain first. They all have statutory formula reserves just like the U.S., but one thing that's very different is none of them requires asset adequacy analysis in addition to the statutory reserve requirements. The next group has what I call a broader net premium reserve system. This group contains countries like Hong Kong, the Netherlands, the U.K., Singapore, and South Africa. They allow all guarantee benefits to be included, and they typically give the actuaries a little more flexibility as far as choosing assumptions in doing the valuations. The next group is the gross premium reserve system, and Australia and Canada have these systems. Basically all the guarantee and nonguarantee risks must be included, and the actuaries are giving pretty high-level guidance on the assumptions, but they have the latitude to choose their own as well.

We then look at the surplus requirements. I put them in three categories. One is to investigate which country has a flat-dollar requirement. I think almost every country has this flat-dollar requirement that is typically very small. So they are really not being used to manage a company but rather to set up a company up front. The next category we looked at includes those with the solvency requirements. The way I define this is more formula driven. I try to understand the existing risks for the in-force business, and this is sort of like the risk-based capital (RBC) requirement that most countries have these days. In the past five years, the world is definitely moving toward that direction.

The next one is what I call capital adequacy requirements, meaning capital that is needed to cover both existing and new business. There are only three countries that will have those kinds of requirements. Our task force looked at these three countries very closely, and we're going to cover two of them in detail later in the presentation.

Next we look at reporting systems. We first looked at how many external reporting systems exist in each country. I guess one conclusion we sort of know going in is the U.S. has most of these systems. We have at least three systems: GAAP, tax, and statutory. I can go on for another hour about state variations that would add on more systems. Most other countries have just one system. They may have a modified tax system, but basically statutory and GAAP are very similar, with the exception of the U.K., there are some adjustments. We also look at the type of disclosure we are required. This is largely related to whether the country has any kind of appointed actuary, whose roles we will discuss more later. The basic formula reserve requirements are pretty much similar to the U.S. In other words, they have the annual disclosure and the quarterly stuff.

The next one is the role of the actuary. This is a very important subject for our work group to look into. We first look at what these countries would require to become an actuary. We found that more than half of the countries have some kind of examination system. They may not be as rigid as our system, but they have some kind of system in place. We then look at the valuation duties of these actuaries. The valuation duties really vary. In some countries the actuaries do formula reserve compliance. There are actuaries responsible for the solvency requirements, like there are in the RBC framework, and then there are also those three countries that have capital adequacy responsibilities. Actuaries are required to report to the government official, but the report is kept confidential.

The appointed actuary requirements are interesting. It seems like the CG are not required in countries like Japan or Germany, where formula reserves are strictly complied. Those countries don't have the appointed actuary concept at all. You

have to go out to the next bucket, which is the broader net premium valuation bucket. That's where the appointed actuary concept starts to surface. So we're the only country that has both our appointed actuary concept that largely came from our asset adequacy requirement. If the appointed actuary is almost always appointed by the board, then there is some kind of relationship with the government as far as reporting a company's financial condition.

Let's revisit our objectives going in as a Valuation Task Force. We listed these three objectives. The first one is to be able to evaluate the company's ability to execute various business alternatives. Many people might think about this more as what we call the capital adequacy kind of requirements. In other words, we'll be looking into not just the in-force business, but also the new business. We will try to figure out the resource needs to fulfill those needs. That's one of the objectives. Then the second objective is to figure out if we have adequate resources relative to our existing obligations. The first one will have both new business and existing business. The second one is the existing business. The third one measures the changing resources relative to its obligations. I guess we can think of that more as the income statement kind of requirements. When we went into this project, we pretty much wanted to come up with a valuation framework that's really holistic. In other words, we were looking at the total picture. Right now in our statutory book, we have division between surplus and reserves, and both the RBC and statutory formula are formula-driven. We sort of look at them in silos. They are two formula-driven systems that sometimes relate and sometimes don't relate to each other.

So our thinking at the beginning of the task force is we want to create a system that will bring that all together. The most important thing is to figure out the total risks that we're taking. Looking at the countries that we went through, Mexico is the only country that's really fitting with that kind of goal. Mexico's total valuation concept is to come out with two standard deviations of all risks and then subtract a formula-driven surplus to get the reserves. While our work group did not really agree with the priority of putting things into the buckets, we agreed with the holistic method that Mexico is taking. We think that's the right holistic approach. We looked at which countries can evaluate a company's ability to meet both new business needs, as well as existing business needs. Singapore, Canada, and Australia are the only three countries that meet all those needs.

There is some other information we have taken away from the exercise. Basically we feel that the assets and liabilities should be valued very consistently. In countries where that's not done consistently, they really run into trouble because of that. South America is doing a good job combating the inflation by indexing both the assets and liabilities in their valuation, and that seems to be working pretty well.

We also learned that the regulations need to provide flexibility to adapt to changes in markets. This may sound very common, but we actually saw examples of how the regulations can lag behind, and that's happening in the U.S. as well. When you have that kind of situation where regulation does not provide you with flexibility, you have to wait for your regulation change. The market is just moving too fast for you. We have seen situations that prove that the market really has suffered as a result. We felt that we really have to build a relationship with our accountant counterparts. I don't know if Ed agrees, but our group actually felt that the reason that the Canadian actuaries are able to do the dynamic solvency analysis is probably related to how close a relationship they have with the accountants. So we felt that it's very important to build a close relationship. I hope that next time it is not a surprise that our system is just way too complicated.

Mr. Kunesch: We felt that it would be interesting to discuss a couple of examples. We selected two countries that have gone through significant change in their laws in the last five to seven years. These countries are Australia and Canada. Many of you are familiar with Canada. However, most of you are probably not familiar with Australia. It's a beautiful country. If you ever have a chance to visit it, please do so. It has a large actuarial community, a sizable number of companies, and, as you'll see, it has exhibited some forward thinking. First, I will bridge to what Shirley said was the original objective of the task force and then bridge this objective to the systems in Canada and Australia. This will give you a sense of why the Australian experience is interesting.

Objectives Revisited

First, as Shirley indicated, the first objective of the Valuation Task Force was to evaluate a company's ability to execute its business alternatives. In effect, it answers the question, can the company afford to grow as planned and still meet desired RBC levels and rating? So it is an objective that addresses capital adequacy. The second objective evaluates the adequacy of a company's reserves relative to its obligations. This is the basic one, of course. It goes beyond basic policy reserves to the issues of capital adequacy and solvency. The third objective, as Shirley mentioned, is to measure changes in a company's resources relative to its obligations.

In my view, the issue here is: can a realistic income statement be prepared that instructively displays how well a company is doing from year to year? The key words are realistic and instructive. The income statement should be meaningful not only to actuaries but also to investment analysts, to accountants, and to the world at large. Perhaps we can look at these objectives in another way, as a three-tiered pyramid. At the base, of course, we have policyholder liabilities (Objective 2); in the middle are the necessary requirements for solvency, also a part of Objective 2,

and at the top is capital adequacy (Objective 1); in other words, we have the company's ability to meet its business plan. Enveloping this pyramid is the change in the financial posture of the company from period to period, measured by the income statement, one that is meaningful and realistic (Objective 3).

General Comparison of Australia and Canada

Now I'd like to quickly compare the systems in Australia and Canada. The main regulator in Australia is the Insurance and Superannuation Commission (ISC). It is a federal body. In Canada it is the Office of the Superintendent of Financial Institutions (OSFI), also a federal body. A group called the Canadian Council of Insurance Regulators (CCIR) supports it at the provincial level. The CCIR has less power than our NAIC, but it is similar. It makes recommendations regarding product matters and privacy matters involving policyholders, AIDS, and things like that. OSFI, the primary insurance regulator, is responsible for prudential regulation and consumer protection matters in all of Canada. The key legislation in Australia is the 1995 Life Insurance Act. In Canada, it is the 1992 Canadian Insurance Company's Act.

Important to Australian insurance regulation is the Life Insurance Actuarial Standards Board (LIASB). The LIASB is part of the federal government. It is comprised of a dozen or so professionals, with all but one being actuaries. Members are appointed by the federal treasurer. The LIASB has basically established all of the existing standards for valuation, capital adequacy, and solvency, indeed anything that commits the actuary to the 1995 Life Insurance Act. In addition, the LIASB also addresses things like policyholder surrender values and paid-up values.

In Canada there is a group very similar to the ACLI called the Canadian Life and Health Insurance Association. It works with the CCIR. The Association formed the Canadian Life and Health Compensation Corporation, known as Comp Corp, to protect Canadian consumers if a member company fails. Comp Corp is similar to our National Organization of Life and Health Guarantee Association (NOLHGA).

Let me give you a perspective on the two countries' market size. I believe Australia has a population of 18-20 million people. Canada has about 28 million. The top three companies in Australia are quite dominant compared to the Canadian situation where the top three are less dominant. Note that these statistics are effective as of the end of 1995, so they are a bit dated. However, they still are generally indicative of these markets.

The total number of companies, life and P&C, varies considerably. Canada still has a lot of companies, even though this has come down a bit since 1995. There have been only a few insolvencies.

In another area, Australia has a fairly full range of products. What distinguishes Australia is the large number of tax-sheltered products. They call them superannuation. In Australia you'll hear terms like "ordinary" and "superannuation" coverages. Superannuation products are largely pension-related, although they can be life insurance as well.

In Canada the product structure is relatively similar to the U.S. However, there are more registered retirement savings plans, with an emphasis on the savings element. There are also some lapse-supported products that you will not find in the U.S. because they're not allowed here.

In terms of trends Australia is experiencing increased mergers between banks, insurance companies, and mutual funds. In Canada, the trend is toward more insured savings programs.

Regarding investments, Shirley covered the topic quite well. I want to point out a couple of things. In Canada, under law, the board of directors must establish reasonable and prudent investment and lending policies. There aren't really a lot of restrictions in Australia, although investments must be made by each statutory fund. This is a concept carried over from the U.K.

The most dramatic investment-related comparison between the two countries relates to asset valuation. Australia is a fair-market-value country for reporting purposes, while Canada is a book-value-based country, much like the U.S. In Canada, there is Bill S-3 in which capital gains are spread over a number of years for equities and real estate. Ed will talk more about that later.

On taxation, I simply want to point out two things. First, Australia is taxed on an *I minus E* basis; that is, investment income minus certain qualifying expenses. This is the U.K. structure. It applies for all but disability income products, which follow a profit-tax structure. An *I minus E* structure, to a large extent, represents a tax pass-through to policyholders. The tax rates vary significantly in Australia—39% for normal, ordinary products and 15% for superannuation products. These tax rates apply to the individual. There is no company tax on immediate annuities in Australia.

In Canada the tax structure is similar to that in the U.S. with a profits tax, except there is no deferred acquisition cost (DAC) tax. Rates are similar to those in the U.S. On reporting systems there is only one game in town. GAAP is statutory in both countries. The reporting cycle is annual in both countries, although quarterly statistical returns are also required in Australia. Formats are rigid and are specified by the government (the ISC in Australia and the OSFI in Canada).

Reporting standards in Australia are promulgated by the Life Insurance Actuarial Standards Board (LIASB). Whereas in Canada reporting standards are controlled by the Canadian Institute of Chartered Accountants (CICA), an organization similar to the American Institute of Certified Public Accountants in the U.S. Annual audits are required in Canada but not in Australia.

Regarding the structure of each country's valuation system, both employ a gross premium valuation approach. In Australia, the basic policy reserve excludes any provisions for adverse deviation. The system is called margin on services (MOS). It is an earnings-driven concept and is done by statutory fund. More will be said about that later.

In Canada similar best-estimate assumptions are used, but provisions for adverse deviation (PADs) are specified. The Canadian Institute of Actuaries (CIA) provides guidance for PADs to the actuarial profession. Canada's reserve methodology is called the policy preserve method (PPM). For accumulation products, a fund accumulation method is used.

Both countries have solvency standards. Australia's approach is through an actuarial calculation very much like the basic reserves on a policy-by-policy basis. However, this time, the gross premium valuation uses PADs. In Canada a formula-driven approach is used for solvency measurement. Australia goes one step further on capital adequacy; it adds three years of new business to the best-estimate reserve calculation with PADs. Canada uses what's called dynamic capital adequacy testing (DCAT) with five years of new business.

Australia does not require cash-flow testing. Canada does through the DCAT requirement.

The Australian Example

Now let's focus on Australia. The 1995 Life Insurance Company Act does a number of things: (1) It requires statutory funds. A statutory fund is a required segmentation of the company's business, for example, foreign versus domestic. It might be product-related like par versus non-par. Similarly, investment-linked products will have a separate statutory fund. (2) The law defines classes of business, as discussed earlier: ordinary versus superannuation, investment-linked versus non-linked business, participating versus non-participating. (3) It established the LIASB, which in turn defines the role of the appointed actuary. (4) It makes reference to specific solvency and capital adequacy standards. (5) The act makes reference to the actuarial standards of practice that the LIASB has promulgated. (6) The same thing with valuation. Specific valuation standards are promulgated by the LIASB. As you can see, actuaries play a very significant role not only by assuming financial

reporting responsibilities but also in the development of what those reporting responsibilities should be.

Let me provide a couple more thoughts on the Act. It requires annual reporting and a financial condition report. Let me simply say that this report first goes to the board of directors. It has to include things like the valuation of liabilities and an assessment of the company's compliance with the solvency and capital adequacy requirements. What is perhaps most important for actuaries is it is not a public document. The report is not available for general distribution to the public or to policyholders, but it is provided, in private, to regulators. I am not sure whether such an approach would work in the U.S. with our legal structure. Finally, the act references certain continuing capital requirements, again diverting responsibility to the LIASB. Finally, supervision and enforcement responsibilities belong to the federal government's Insurance and Superannuation Commission.

Australian Valuation

The basic policy reserve in Australia is defined by statutory fund, and comprises two parts: a best-estimate liability (BEL) and the present value of expected future profits. The second item, future profits, is very interesting. For non-participating business, it represents the profits that are expected to arise under the MOS system.

Under MOS, the actuary and the company define certain profit drivers. The present value of expected future profits for participating business will also include amounts that are expected to be distributed in the future to policyholders in the form of dividends (bonuses). Certain rules apply in that regard.

The best-estimate liability is just that, a gross premium reserve without provisions for adverse deviation in the assumptions. There is a floor to the reserve of the termination value based on contractual terms.

Regarding the basic policy reserve, the idea of MOS is to permit a uniform release of profits in relationship to one or more profit drivers. The best-estimate assumptions have to include all assumption, including expenses, inflation, taxes, and reinsurance. Changes in the assumptions, expected to be annual, cannot impact the current year's earnings. The impact is pushed forward, as compared to U.S. GAAP where, under *SFAS No. 97*, the effect is pushed backwards, resulting in "catch-up" corrections reflected in the current year's earnings. The DAC amortization percentage, under U.S. GAAP, is recalculated each year measured from the original acquisition date of the business, so you can have a prior period effect in the current year. That is not the case under the MOS system. However, in Australia if losses become apparent, you must immediately reflect those losses in the current period.

The profit drivers are financially measurable indicators of the expected cost of services to policyholders or the expected income related to these services. In defining the profit drivers, the actuary must specify a profit margin to the regulators at the time that the product is introduced and the business is sold. This margin is defined as the present value of profits coming from the profit driver divided by the present value of the profit carrier itself. This represents profits to shareholders.

Now, what can be a profit driver? A number of things. It can be premium, claims, asset charges, non-asset-based policy changes, mortality charges, expense charges, investment income, annuity payments, bonuses, or dividends. Selection of a profit driver depends on product structure. Once established, it cannot be changed. Changes are difficult to accomplish. Where the actuary believes this is necessary, there is a lot of guidance provided to actuaries on how and when to do it.

As I indicated, the best-estimate assumptions can change annually. The effect of changes is pushed forward prospectively. Assets are at market value. The standard says that the policy liability must be calculated accordingly. There is a lot of discussion as to what this means within IASB Standard 1.01. There are two minimum capital requirements. Both are measured at the statutory fund level. There's a solvency requirement defined by Standard 2.01 and a capital adequacy requirement defined by 3.01. Both are subject to an outright floor to \$10 million Australian of shareholders capital and another \$5 million of assets over the statutory fund liabilities. For large companies these are quite inconsequential.

Australian Solvency Standard

The purpose of the solvency standard is to provide for the security of existing policyholders' benefit entitlements under a range of adverse conditions. This range has to capture reasonably possible conditions in the future, in a manner similar to stochastic testing of cash flows. Again, the calculation is made at the statutory fund level. The result of the calculation is not a liability on the balance sheet, but instead is reported in a footnote. Only in-force business is considered. In effect, it represents the amount needed in a wind-down situation. Key components of the standard are as follows:

- (1) A solvency liability, which is really the best-estimate liability with PADs. The PADs are specified in the standard.
- (2) An expense reserve, which is acquisition-related. In a wind-down situation this provides for the continuation of expenses after you would wind down the operation. It provides for one year's non-commission related acquisition expenses after tax relief in a country.

- (3) A resilience reserve provides for investment disintermediation. In other words, it measures the fund's ability to survive a shock change in the economic environment. Shock is defined in the standard.
- (4) A non-admissible assets reserve. This covers situations where investments are concentrated in one geographic area or investment type and when the company's continued existence depends on certain assets.
- (5) All liabilities to creditors.

The reserve cannot be less than the minimum termination value. Assumptions are provided for in the standard. It uses a single scenario and considerable guidance is provided regarding the asset risks that need to be considered in a market-valuation environment.

Australia's Capital Adequacy Requirement

The purpose of the capital adequacy requirements, specified in LIASB Standard 3.01, is to ensure the company is able to continue to write new business. Thus the standard is designed to give assurance that capital will be sufficient to provide a long-term confidence that the company is financially stable and that it can continue to meet its business plan. It includes three years of new business. It is similar to the solvency test, except that you knock out the expense reserve and add a new business reserve. The new business reserve allows for capital emerging over a three-year period. Therefore, any capital arising from the existing book of business can help support the capital needed to sell new business. Assumptions are prescribed by law, although there is some actuarial discretion. The result of the calculation does not appear in the annual report but is reported separately to the regulators.

Actuary's Role in Australia

Now let's turn to a comparison of the role of the actuary in Canada with that in the U.S. In both countries, the valuation actuary is called the appointed actuary. In both countries the board of directors appoints them. The appointed actuary's powers in Australia are quite broad. The actuary is entitled to receive all of the information he or she needs to complete the work, including documents, contracts, reports, and so forth. Under law any officer or employee must provide the requested information. The actuary has the right to receive that information, and the information must be accurate and complete. The appointed actuary may attend any board of directors meeting that he or she wishes to attend, particularly to obtain information in matters regarding capital adequacy, company solvency, policyholder matters, and so forth. So the actuary carries a certain amount of clout in his or her company.

To be qualified, the actuary must be a member of the Institute of Actuaries in Australia. By comparison in Canada, he or she must be not only a Fellow of the CIA but must also receive a letter of recommendation from another qualified actuary.

The appointed Australian also plays a whistle-blower role. It is covered by one of the LIASB standards and is also in the law, Section 98. In this role, the appointed actuary must draw to the attention of the company and the board of directors in writing any matter that the actuary believes requires action by the company or the board, to avoid a contravention of the act or to avoid prejudice in the interest of policyholders. If the board or the company does not take action in a reasonable time frame, then it is the actuary's responsibility to provide notice to the Commissioner of Insurance in writing. This is what's called the whistle-blower role, and it is a legal requirement. Penalties for noncompliance can be severe, even a prison term.

As a final thought, in Australia there is greater recognition of solvency and capital adequacy than we currently have in the U.S. There's greater discretion given to the actuary and a greater involvement of and reliance upon the actuary in his /her role as appointed actuary.

Before I turn it over to Ed for his presentation, I would like to address the question of whether such a process could work in the U.S. I don't know the answer to this question and I will not even attempt to speculate. However, consider the following facts. We have a different legal structure in America. We have more companies and a different taxation structure. All of these differences would complicate attempts to apply the Australian example here. However, I do believe there are many aspects of the Australian example that we can learn from and that perhaps require further study. At a minimum, the Valuation Task Force should continue to study this example because many of the concepts employed in Australia are exactly what the Task Force is looking at.

Mr. Edward J. Freeman: I'm going to present the Canadian aspect of this issue. I've been working in Canadian companies since 1983. I worked with Transamerica Life in Toronto and with Met Life in Ottawa. I am now working for the international operations division of John Hancock. I then moved to Sun Life in Boston, which is kind of ironic because I have joined my first Canadian company down here in the U.S.

Canada is, in many ways, very similar to the U.S., but there are a number of significant differences. I will go over the regulatory environment, the products, investments, and solvency. I'll go over the role of the actuary and the actual valuation method in a little more detail.

As Dan mentioned, the chief regulator for financial institutions is OSFI. It regulates all financial institutions at the federal level. It relies on the CIA to set up reserve methods. It relies on the CICA, which is the accounting body, to set up the accounting rules. In general the CIA set up the valuation rules. OSFI performs regular audits of the various companies. At least every three years, they will come in and take a look at a product or take a look at your statements. Taxation is similar to the U.S. In the U.S. you have a DAC tax which tends to hurry up the taxation. We have something called an investment income tax that serves as a minimum tax. This tax is a tax credit against your income taxes. Premium taxes are defined at the provincial level and are generally the same as the U.S.

Provincial Bodies

If you are provincially registered, the provincial body regulates your financial reporting. There are companies that are provincially registered, but they're very small, except in Quebec. Quebec has a fairly large domestic industry and regulates its own financial reporting. From the point of view of a financial actuary you hardly ever hear from the provincial regulators. They just don't impact your life at all. They do impact the marketing and contract people because the wording of contracts is legislated at the provincial level. Agent licensing and testing is also at the provincial level.

Products

The products are pretty similar. There's participating whole life, universal life, dynamic funds, and term. We don't have the variety of variable products. We have them, but they're not nearly as developed as the U.S. There is sufficient room for other products there so that these haven't hit the market yet. As Dan mentioned, there are no nonforfeiture rules, so we have something called Term 100. Generally there are no cash values, and it endows for the face amount at age 100. We don't have illustration regulations. That's not to say that we don't have a lot of focus on illustrations. We have our own illustration and market conduct problems in Canada. We thought that would pass us by, but apparently it will not. So there is a fair amount of focus on illustration.

Investments

The investment market is similar to the U.S., but we don't have instruments like mortgage-backed securities. The market depth is not there. It's a relatively inefficient market. There is Bill S-3 reporting, as Dan and Shirley mentioned, which is basically book-value reporting. If you have a premium or a discount, it's amortized into income over the life of a bond. If you sell it, any market value gain or loss does not roll into your income statement at the time. A gain or loss will be held off as a liability or asset and will roll into income over the balance of the lifetime of the bond you have just sold. Equity gains and losses, both realized and

unrealized, are brought into income in a smoothed manner as well. They'll be smoothed in over a period of 15 years. As you will see a little bit later on, and because of new standards coming out, a lot of the benefits of this particular smoothing disappear.

As Dan mentioned, for solvency we have something similar to the RBC. It's called the minimum continuing capital and surplus requirements (MCCSR). It's basically the same as the RBC. It covers the normal C-1, C-2, and C-3 risks. It's higher than the RBC. For a PAR product, your RBC ratios are probably give or take 2–3% of your reserves. MCCSR will get you up to 5–6%. MCCSR is higher because the reserves are lower. We use surplus for solvency, rather than reserves. DCAT is a projection of negative scenarios. It includes five years of new business. The actuary writes this report. It only goes to the board and to the regulators. It's not a public document. It's an internal document to let management know where they are and what its key risks are. If you're sensitive to new business, if you're issuing a high-strain product, you might want to go longer than the suggested five years or increase your sales projection.

If you're using up your surplus, you have to recognize the impact of regulators. So if the regulator is going to come in when surplus reaches 100% MCCSR, and take over your company, and that causes negative reaction, that's what you've got to model. The base scenario under DCAT is supposed to handle keeping surplus above 150%. Other scenarios are supposed to keep your company solvent. In general, you can't do that because assumed regulatory action causes your company to disappear.

The Role Of The Appointed Actuary

In Canada, the appointed actuary has a key role in the operations of a life company. The position is required by law and reports directly to the board. He has internal reporting requirements as well, but he reports to the board, and he's expected to give an annual report—the DCAT analysis mentioned earlier. He is entitled to anything that's going on in the company that's in any way related to the running of the operation, similar to the Australian issue.

The actuary in Canada is protected from liable lawsuits in the event that a negative report has negative consequences to the company. There's something called privilege. As long as he's doing his job, he's protected from lawsuits. He's actually even protected in some sorts of negligence. If he does his job poorly, he's still protected as long as it's in good faith. He's not protected under gross negligence, but even then it gets a bit dicey. So the actuary's in a fairly powerful role. I was just at a presentation on this subject that took 45 minutes. It's a complicated topic, and the above discussion does not do it justice. The actuary is also responsible for

maintaining equity between participating and nonparticipating products. He's responsible for fair and equitable allocation of expenses and taxes, for example, between participating and non-participating. He's responsible for equitable distribution of the dividends. The board, of course, is still responsible for the amount of the dividends, but the actuary is responsible for the allocation.

Consolidated Standards Of Practice

This is an incredible document representing the Canadian version of consensus of actuarial practice. There is consensus but definitely not unanimous approval. This document was, and still is, a long time coming. One of the goals of the standards is to reflect the actuary's professionalism in reporting. Part of the idea of consolidated standards of practice is to narrow the range of practice so that two actuaries get the same material results; it's not an easy task. These standards are to be consistent across and within professions. This applies if you have a pension plan, property and casualty, group, health, or any of them. The basic theory of how to calculate a liability is the same. You must consider everything. Given general guidance there is also practice specific guidance. For example, there are different techniques for pension plans and life insurance. In life insurance, one goal is to have a single valuation for statutory and GAAP.

The valuation is the meat of the issue. The Canadian viewpoint is to look forward. What happened in the past is important, but not as relevant as your impression of the future. The past can give you some guidance as to what is going to happen. The original calculation was PPM, which was based on *FASB No. 5*. PPM is an accounting estimate with small provisions for adverse deviations. It's a prospective look at what's going on. The Canadians have decided that the reserves are for income, and surplus is for solvency. You have two statements, one for income and one for solvency. You have two quantities: reserves and surplus. You can split them up the way you like.

Let's talk about margins and the theoretical front-ending of profits. In the Australian system you reserve for profits. The level of profit on a policy is not necessarily related to the risk. Reserving for the profit may or may not make appropriate provision for adverse deviations. Under this method, the same risk could have different liability values in two companies. Now, if you reserve for your profit margins or if your reserve margins equal your profit margins, then just after issue, you will have a reserve equal to the asset share. In this circumstance, you have no gain or loss at issue. How many people in the audience have fat pricing margins? Not many. How many have thin margins? Again not too many. I guess the rest of you have really thin margins. Now put on your valuation hats and decide whether prudent reserve margins would be higher or lower than your pricing margins. Given modern pricing, reserve margins are generally higher than pricing and so you

don't have front ending of profits. You do have negative reserves, which is not a problem. Think of the negative as a type of deferred acquisition cost. You're looking at a prospective valuation that says that some of the future premium and other revenue are used to pay for the issue expense, and you should recognize this at issue. If you want to worry about cash value deficiencies then, put the provision in surplus. It's not an income statement item. Any sort of floor is a surplus item, a solvency issue is not an income issue. In the 1950s, when we were issuing fat margin participating products, we might have had front-ending of profits. I doubt we have them today, and I definitely have not had them in my experience.

The general method for valuation in Canada is new. The following comments are from the draft consolidated standards of practice for life insurance. The new valuation process will be called the "General Method." It's similar to what we've used before. The first step is to define your expected experience. The second is to define your margins based on risk in your contingencies other than interest. The third one is to define the margins for interest, which is a stochastic process. The fourth step is to define the policy response to the first three. Many products have flexible underlying benefits that can respond to assumptions and adverse scenarios that you create. It is appropriate to reflect these negative scenarios in the policy response, if it is available. I'll talk in the next section.

Best Estimates

Start with your current term structure of interest rates and assume it will not change in quality, duration, or anything else. You should reflect derivatives. Define your current liabilities using the best estimate of your mortality, lapse, expense, and any other costs. In waiver or LTD valuations, you will consider recovery rates. In workers' comp, you have a whole different set of issues. Some of these liabilities are going to be dependent on the interest rate scenario and some are not. Classic ones might be universal life funds and participating dividends. For mortality or any basic contingency, use your own experience if credible. If it's not credible, use industry. If the industry's not available, use your best guess. You're an actuary. Use your judgment and come up with something. You priced your product. You've got to think something's going to happen. Then gather experience and change your assumptions as you go forward. These assumptions could modify some policy element. The premium pattern defines the surrender benefit for a UL contract. Participating policy dividends are an obvious one that I will focus on because they have the largest flexible benefit and a participating policy dividend is a difficult product to treat in a completely prospective environment.

Margins for Adverse Deviations Other than Interest

Any Canadian margin is for misestimation and deterioration of the mean. They are not to cover statistical variance or catastrophic losses. Volatility is part of the

business and should flow through income. Surplus is for catastrophes. If you have a product with a very stable mean but a very high variance, you would have low margins. Like the Australian method, these margins are on every contingency that you have. These margins are released as you perform the services, such as taking mortality or lapse risk.

Now with UL cases premium payment may have a margin. If your fund mechanic means that higher or lower premium payment can get you a higher or lower reserve, it's an element of the contingency. You should create a margin—higher or lower, longer or shorter. Then premium payment is going to be a contingent event, and you will get profit from it. If you perform these services, you get the profits. If you're wrong, your profits are a little bit less. Expense margins are about 2.5–10%. If you have experience studies, how do you get volatile expenses? You change your distribution. You change your products. You change your allocation method. If you don't have any control, any of these things cause you to move up to the 10% margin. If you have all that under control and everything is stable then you're down to 2.5%. You look at each margin with the issues that control the risk of that margin and you decide where in the range you are. Things are not going to change quickly from year to year so your margins should be relatively stable. You, as actuary, have the right to change them every year, but if you change them every year, up and down, you open yourself up to charges of income manipulation.

Interest

You have defined your base interest rate scenario above. Look at the options that are embedded in your projection—all your asset and liability cash flows. Policyholders have options. They can persist or lapse. All these policyholder and assetholder options may depend upon your interest rate projection. Reinvestment and disinvestment can have different rates. For example, there are spreads between borrowing and selling. There are expense cash flows: a high interest rate would imply high inflation. Changing interest rates may change your lapse rates. Define all these relationships. Take a quantity of assets and roll the scenario forward to find the terminal surplus. If you have a final surplus or deficit, change your initial assets and repeat. This method of valuation implies that the accounting method for the asset doesn't matter. The key is the asset cash flows under that scenario. The liability is determined by the statement value of your assets. If you move to a market value of assets, you wouldn't change the process at all. If you are cash-flow matched between assets and liabilities, any asset increase will be matched by a liability increase, resulting in a pretty stable income statement. If you take default or duration risk, you're going to wind up with volatility in your income statement. If your liabilities are insensitive to market movements, you will have income statement volatility since the reinvestment assumption changes continuously.

For those with weak systems, there are seven defined scenarios. You run through your scenarios and pick the highest level of assets determined. If your systems are more sophisticated, you may run a stochastic process. The liability is set at the asset level, one standard deviation higher than the mean.

Policy response

Some policy liabilities can still respond to the conservative assumptions. For example, if you have a PAR product and you can change your dividends, then you should hold a lower reserve than otherwise. If you are the valuation actuary for Japanese business, the liability would have hit the guarantees and you would not be able to modify your liabilities. In Malaysia, due to market pressure, no one in the industry has ever changed dividends. In the valuation you reserve for the expected dividend level which is fixed so, although the policy is participating, there is no reserve modification. So to the extent that you can reflect any of these types of adjustments in your policy liabilities, you can use lower reserves than are under a fixed and guaranteed product.

The Policy Premium Method

This is still the current method until the draft standards are accepted. This approximates the general method. First determine the policy cash flows. Define a conservative reinvestment scenario and determine a discount rate based upon your asset portfolio and the liability cash flows. Discount your liability cash flows at the rate determined in the prior step. It's pretty simple really but is not as dynamic as the general method. You cannot use this method for annuity products because the liability is too asset based. For annuity products, the general method with stochastic testing is already the current standard.

Reinsurance

Unfortunately, you get to do the calculation both gross and net of reinsurance. As the actuary, you must determine if the reinsurer is able to absorb the ceded reserve. If the reinsurance company holds Canadian reserves, and you know that the reinsurance company is strong, you're okay. If the reinsurer is offshore, maybe you should hold the gross reserve.

In Canadian reporting, as you can see, there's usually no DAC but it is possible. There are products that are more like investment products than life insurance. In which case, it may be more appropriate to use banking style reserves with a cash value reserve and a DAC.

One of the things you notice about the market value of liabilities is that there is no market. The actuary determines a large number of assumptions, and there is no corrective mechanism. Different actuaries will arrive at different answers, and there

is no market to draw the expectations closer together. Standards of practice reduce the variance but will not eliminate it. Even so, it's likely to be the new basis for U.S. GAAP because it is completely prospective. The major objection from FASB will likely be regarding the determination of the market value of the liability based upon your current portfolio of assets. The likely process is the replacement of the interest-based scenario and margins with the spot rates at the date of valuation.

Ms. Shao: There is another session (26PD) at this meeting called, "The Lessons From Asia," which might give more insight. For example, Ed mentioned the Japanese situation. We're looking to that because right now the yield curve is very flat and very low. I mean we're talking about short-term rates at about 0.2%, and long-term rates at about 0.7–8%. We're looking to GAAP recoverability analysis and all those things.

Mr. Kunesh: The only thing I would learn is don't let the regulators control minimums. Let the marketplace do so. I think Japan is hurting because of it.

Mr. James F. Toole: I'm wondering if there are any other countries that use deferred acquisition costs the way that we use them in the states and if it's reasonable to expect that we'd be able to maintain that in the future. What's the tension between what we're finding in this committee versus the control that the accountants have?

Mr. Kunesh: I have a couple of comments. Two countries come to mind. France has deferred acquisition cost. I think they do commissions only, and Italy does some commissions. I'm sure there are others. I just don't know who they are right at the moment. As you know, Canada and Australia have an implicit way of doing it in the reserve. It is implicit in the sense that it's not explicit but it has the same effect on the income statement. In terms of the accountant's reaction, I believe that the current initiative of IASC involves looking at a number of things. It is questioning whether or not it is more appropriate to show deferred acquisition costs on the balance sheet than it is to show something like the intangible value of the company in the balance sheet, or the embedded values short of assets instead. Certainly there's not room for both, and so I think you might see some major changes to this whole concept. Maybe the U.S. will be in the minimum in terms of number of countries that are explicitly reflecting deferred acquisition costs. I don't know if it's answering your question, but it's the minority position.

Mr. Freeman: To my knowledge, even FASB wants to get away from DACs. They want to go prospective. So, we'll see.

From the Floor: One thing that I noted in reading one of the handouts that was not mentioned was with respect to the delineation of duties on the appointed actuary in

Canada. That person cannot be one of certain specific officers within a company—CEO, COO, CFO. Is that correct?

Mr. Freeman: Generally it would not be one of those people. The appointed actuary is a separate and distinct role from all of those by practice. I really can't say if it's forbidden or not.

From the Floor: It's not really specified or it's just a general directive or understood?

Mr. Freeman: It's well-understood. Is it a general directive? I don't know.

From the Floor: It seems it could very easily be separated in Canada, but if you bring that concept into the U.S. with the considerable increase in the number of companies and shared duties and so on, I wonder if it should be something to keep in mind in fashioning whatever structure we have to make sure at least we do not get a person occupying the appointed actuary and chief marketing officer.

Mr. Freeman: I tend to agree with you completely there.

From the Floor: I have a question about the European union. You mentioned you looked at the valuation systems in a few countries. Have you also looked at the valuation in the European union as prescribed by the European directives? They are being implemented in the various countries, and there is certainly a convergence between those countries. Now, if you have looked at those requirements, do you see a more significant convergence between the U.S. valuation system, the way it's going to evolve in the future, and the European valuation system?

Ms. Shao: I mean I don't have extensive knowledge, but I think the EC requirements, as far as valuation, are pretty high, very generic, and not very specific. My answer would be, no, not really. I don't see the U.S. valuation moving towards the EC.

Mr. Kunesh: We didn't specifically, and maybe we should have, looked into the EC requirements. When this initiative started they were out already, but it was still relatively new. I think the EC has capital standards. In terms of reserving standards it's pretty much left to the respective country of origin. Correct me if I'm wrong. We probably should take this under advisement, if this project were to go further and they would want more from the international sector. We would have to look at that closer because I don't think either Shirley or I looked at it seriously.